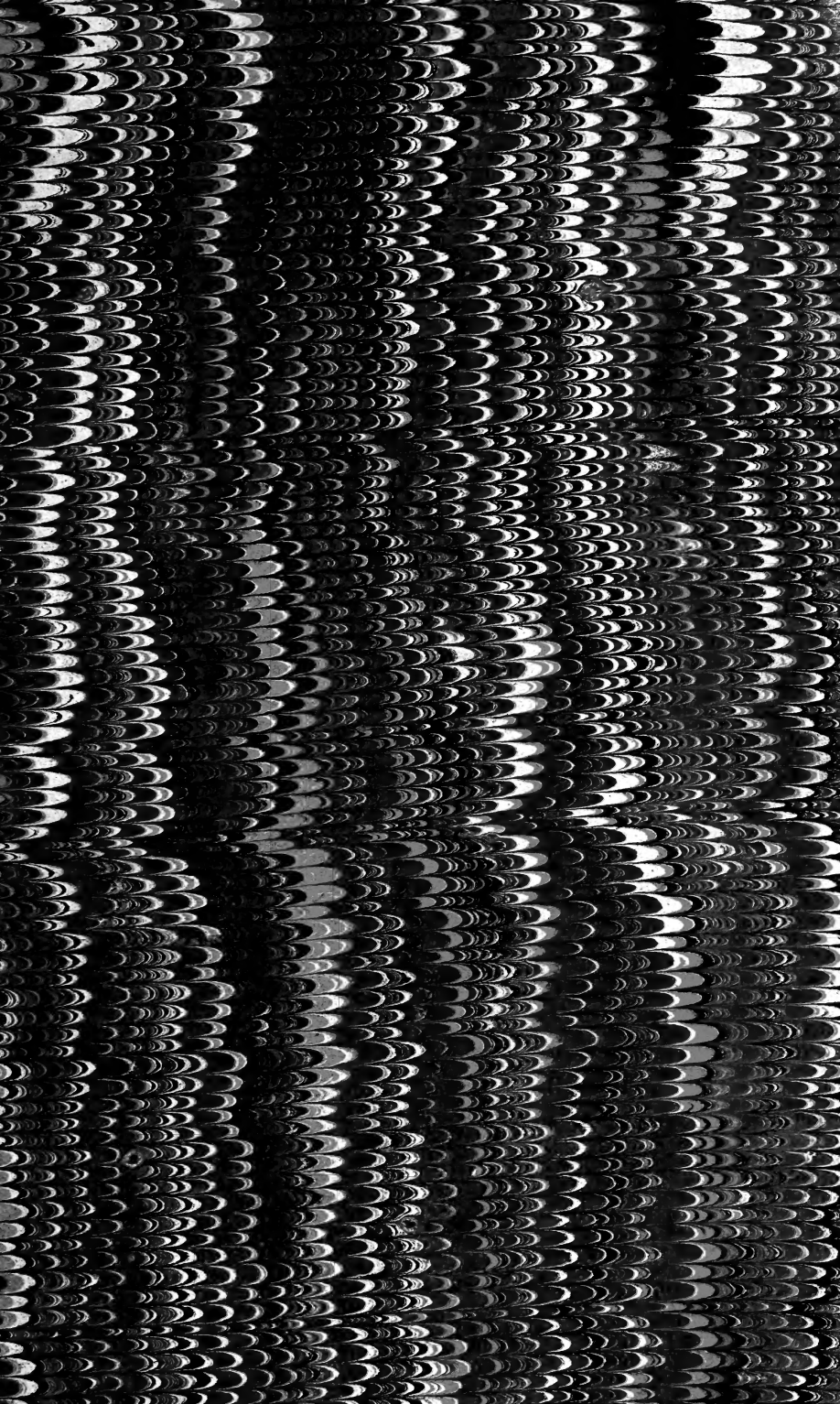
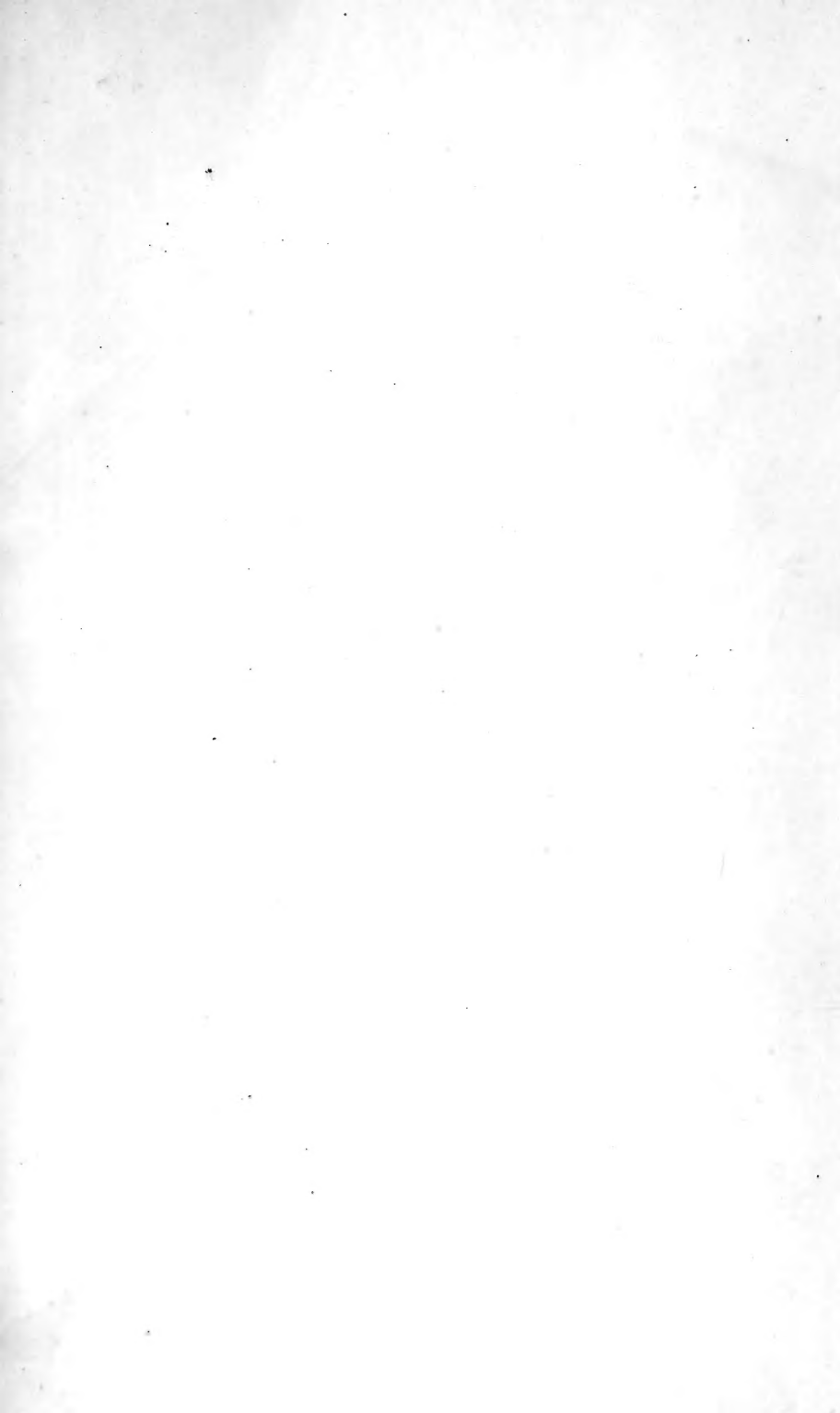


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OF
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CONDUCTED BY
EDWARD NEWMAN, F.L.S., Z.S., &c.

VOLUME THE SEVENTH.



LONDON:
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M.DCCC.XLIX.

“Thy desire, which tends to know
The works of God, thereby to glorify
The great Workmaster, leads to no excess
That reaches blame, but rather merits praise
The more it seems excess ; * *
* * * * * *
For wonderful indeed are all his works,
Pleasant to know, and worthiest to be all
Had in remembrance always with delight.”—MILTON.

P R E F A C E.

SEVEN years have passed away since the 'Zoologist' commenced its career: a Seventh Volume is this day complete. It may truly be said that each volume has exceeded its predecessor in interest and in value. It remains to be seen whether this progressive improvement can continue: my own opinion favours the idea that it can and will. Nature is a treasury so inexhaustible, that the greater the number and the greater the zeal of those who draw on her stores, the greater will be the yield of new and valuable facts: and most true it is that the number of observers, and consequently of observations, increases day by day, month by month, year by year. The question, *cui bono?*—the inquiry whether an increase of pounds, shillings and pence, of food and raiment, result from our labours,—is not now brought so prominently forward as it used to be: it is considered not altogether unprofitable that the mind as well as the body should be clothed and fed, and there are many, even among the wisest, who advocate a search for mental food and clothing amid the works of the great Creator. The number of such advocates must increase: the education which is now given tends to a more just appreciation of corporeal and mental advantages, and even regards the possession of pecuniary wealth rather as a means of obtaining mental wealth than as the ultimate goal of the race we are running. The study of Nature is amongst the most healthy and invigorating of mental occupations; the love of the study is instinctive; the mind, even in childhood, revels in it; and it is not until the authority exercised over us by others, or avarice and ambition germinating in ourselves, have suggested more worldly-profitable occupations, that we abandon the

Heaven-planted love of birds and butterflies, roses and honeysuckles : the lisping infant gathering buttercups and daisies bears its testimony to the force of this instinctive impulse, which always, when unchecked, " grows with our growth, and strengthens with our strength."

I have said that the present volume exceeds those which have preceded it in interest and value: the merit of this improvement is entirely due to my contributors; my own labours have been even lighter than heretofore, and my communications, in almost every instance, have emanated from observations made by my friends. Although the merit of the present volume does not consist so much in the discovery of novelties as in the continuous stream of observations on well-known species, yet, in accordance with custom, I shall assign to the novelties the most prominent place.

In *Mammalia*, we have the occurrence of a new Bat, supposed to be *Vespertilio pruinosus*; it was caught by some people digging potatoes in the island of South Ronaldsha; and Mr. Wolley, the gentleman who communicated the fact (Zool. 2343), seems content to regard the species as purely North-American, although he does not attempt to account for its presence in the Orkneys: the subject requires more minute investigation.

Many months ago I mentioned the occurrence of a Seal (Zool. 1870) in the Orwell river, which was supposed to belong to a species previously unknown in Britain. Mr. Ransome, whose zeal for Natural History has been laudably displayed in founding the Ipswich Museum, has most kindly forwarded me drawings and admeasurements of this unique specimen, together with the information that the skull has been submitted to Professor Owen, who pronounces it to be that of the Crested Seal (*Phoca cristata*, Zool. 2380).

In *Birds*, five additions have been made to the number of species occurring in the British Isles. One of these has hitherto been esteemed East Indian, three North American, and one European: their respective claims to a place in our catalogue must be adjudicated

after a dispassionate consideration of the facts narrated by the several correspondents to whose communications I shall refer, and I hope that in every instance the reader will form his own opinion, uninfluenced by mine.

Mr. Cater announces (Zool. 2391) that two specimens of the Minor Grackle (*Gracula religiosa*) had been seen on the coast of Norfolk, and that one of these had been shot, and formed part of his collection. Knowing this bird to be a native of India, and never having heard of its occurrence in England, I ventured, in an editorial note, to suggest that the pair had escaped from an aviary. In contravention of this suggestion, Mr. Cater subsequently urges (Zool. 2496) that there were a pair, and not a single bird; that they were first observed within a hundred yards of the sea; that the birds were evidently exhausted, as if with a flight across the sea; and that no aviary likely to contain such birds exists within twenty miles of the spot where they were seen.

A specimen of the Greater Northern Shrike (*Lanius borealis*) has been shot at Aberdeen, at the commencement of the present year, as recorded (Zool. 2495) by the Rev. James Smith. Professor Macgillivray, who determined the species, observed, at a meeting of naturalists in Aberdeen, that he believed this to be the first and only instance of this North-American bird having been noticed in Britain, or even in Europe. In this, however, I believe this learned ornithologist is mistaken, as several other instances of its occurrence have come to my knowledge since the publication of Mr. Smith's paper. Copious information on the subject, together with one or more carefully engraved figures, will appear in an early number of the 'Zoologist.'

A bird has re-appeared which fifty years ago passed current as British, but which has been almost unanimously rejected by later authors. To use the words of a correspondent, "Mr. Yarrell altogether ignores it, and other modern ornithologists only mention the reports for the purpose of doubting them." I allude to the Hairy Woodpecker (*Picus villosus*). Lewin gives this bird as British on the authority of a Mr. Bolton, who met with it at Halifax; but subsequent authors have suggested that Halifax in Nova Scotia, and not Halifax in Yorkshire,

was the locality which Mr. Bolton intended to indicate, and thus infer that this North-American bird has only been met with on its own ground. Be this as it may, other naturalists besides Lewin fully believed that it had occurred in England; and a specimen shot at Whitby at the beginning of the present year, and placed in the hands of Mr. Higgins, who fully describes it in the July number (Zool. 2496), renders the older accounts perfectly credible, and entitles them, in my opinion, to be regarded as satisfactory. Mr. Higgins was not aware of the species, and naturalists are greatly indebted to Mr. Bird for determining its name (Zool. 2527).

The volume for 1848 contained a record (Zool. 2067) by Mr. Currier, of the occurrence of the Summer or Tree Duck (*Dendronessa sponsa*) at Tenbury, in Worcestershire. This interesting announcement did not seem to attract the attention it deserved, probably from a suspicion that some mistake might have occurred in naming the species. In the present volume, Mr. Hulke, of Deal, records (Zool. 2353) that two male specimens of this beautiful North-American duck were shot on the 6th and 8th of November, 1848, on the coast of Kent,—one at Walmer, the other at Marsh Side, Chislehurst; and Mr. Newton states (Zool. 2382) that two males and a female were killed at Livermere, near Thetford, on the 24th of October, in the same year, and that some others were subsequently seen: this gentleman, however, suggests that they had escaped from a preserve, a remark which calls from Mr. Hulke (Zool. 2421) the observation that the Kentish specimens were shot within two hundred yards of the sea, that they were in perfect plumage and were not pinioned. The occurrence of this remarkably conspicuous duck on the southern coast, between the dates mentioned above, namely, October 24th and November 8th, 1848, was noticed anonymously in several local papers; but I concluded, and, as it now appears, somewhat too hastily, that a wrong name was assigned to the species. It would therefore seem that certain individuals of this duck made their appearance on the south-eastern coast at the usual migrating period of the duck tribe; but whether they were spontaneous visitors from their far distant home, or mere escapes, it will perhaps be impossible to determine.

In the November number of the 'Annals and Magazine of Natural History' is a notice, by Sir William Jardine, of the occurrence of *Scolopax Brehmi* in Scotland, unaccompanied by any expression of doubt as to this bird being specifically distinct from the common snipe. Turning, however, to Temminck's Manual (part iv. p. 433), I find that eminent ornithologist totally discards the idea that the variation in the number of tail-feathers, among specimens of the common snipe, constitutes a specific difference. Writing of *Scolopax Brehmi*, he says, "Il n'est guère possible de trouver dans les formes, ni dans la coloration du plumage, aucune difference constante ou remarquable entre celui-ci et les individus pourvus de quatorze pennes à la queue." *S. Brehmi* has sixteen feathers in the tail, *S. Gallinago* fourteen, and *S. Delamotti* only twelve. The variation is of common occurrence, and the birds so varying are always found in company with those having the normal number. The difference, not only in number, but in the size and comparative length of the tail-feathers in snipes, is well known to ornithological sportsmen: the last-named discrepancy occurs particularly at this period of the year (October 9th and 10th), when the autumnal moult has scarcely become complete. I am indebted to Mr. Tomes for a copy of Sir William Jardine's communication (Zool. 2621): that gentleman's inquiry is answered by the above quotation from Temminck.

The last addition to our British birds is a new species of warbler (*Sylvia Orphea*), the occurrence of which at Wetherby, in Yorkshire, is recorded by Mr. Milner in the October number (Zool. 2588). It is very remarkable that this Italian songster should have been first detected as British so far north as Yorkshire. Viewed as an addition to our Fauna, this is perhaps the most interesting of the species I have enumerated; *first*, because no doubt whatever can be thrown on its genuineness as a voluntary migrant; *secondly*, because it was evidently nesting here; and *thirdly*, because its occasional occurrence in the alpine regions of central Europe renders its re-appearance here a matter of probability.

In Ornithology there are four other incidents of so much interest that I think it right to invite more particular attention to them. The

first relates to the Cuckoo, and was obligingly communicated by Mr. Yarrell: it is related by Mr. Newby (Zool. 2589) that a yellow hammer's nest, on a Saturday, contained some young birds just hatched; on the Sunday the old bird was found sitting in the same nest on the solitary egg of a cuckoo, and the young yellow hammers were lying dead on the ground: there is no evidence to show that the parent yellow hammer or parent cuckoo turned the young ones out of the nest; but it is quite certain that their forcible ejection was not served on them by a young cuckoo hatched in the same nest, which is the hypothesis almost universally received. The second fact is the hybernating of Swallows in fissures of the rock at Hastings, related by Mr. Fitton (Zool. 2590), and this in such immense quantities as to fill three railway barrows: this seems to realize the views of our older naturalists; but the facts relative to migration are so well known that we must ever regard migration as the rule, hybernation the exception. The third incident is the appearance of the Great Bustard on Salisbury Plain, as recorded by Mr. Waterhouse (Zool. 2590), who supposes the bird to have been a female: this supposition is extremely probable, as the males have been long known to leave the task of incubation and the cares of education to the females, while they migrate southward at the approach of autumn. Although the bustard is so large and heavy a bird, it is quite capable of long-continued flight; and, being extremely abundant in Spain and many parts of France, it is not at all unlikely that it would frequently visit our shores in the summer, if allowed to remain in peace; but there is now so great a desire to obtain ornithological rarities when they occur, that so conspicuous a bird as the bustard has little chance of escape. The only other occurrence I shall mention is the woodchat (*Lanius rufus*), one of our very rarest British birds, at the Scilly Isles, a notice of which is communicated (Zool. 2620) by my very obliging contributor, Mr. Rodd; and from his description of the specimen there is scarcely a doubt that it was a bird of the year, and bred in this country.

In British *Reptiles* nothing remarkable has occurred; but I have been favoured with a communication, published in the February

number (Zool. 2356), announcing the present existence of huge marine animals closely related to the Enaliosauri of by-gone ages, that appears to me in all respects the most interesting Natural-History fact of the present century, completely overturning as it does some of the most favourite and fashionable hypotheses of geological science. The published opinion of M. Agassiz (Zool. 2395) certainly favours the idea that Enaliosaurians may still exist: he says it would be in precise conformity with analogy that an animal should exist in the American seas which has long been extinct and fossilized in the eastern hemisphere: he instances the gar-pike of the western rivers, and says that, in a recent visit to Lake Superior, he has detected several fishes belonging to genera now extinct in Europe.

Scarcely less remarkable is the record of the actual capture and admeasurement of enormous *Fishes*, allied to the rays, in the Gulf of Mexico. Some of these extraordinary creatures appear to have been at least 23 feet in width, and, including the tail, double that length. The communication on this subject is from Captain C. B. Hamilton, of H.M.S. Frolic, and was most kindly handed me for publication (Zool. 2357) by his brother, Captain Hamilton, Secretary to the Admiralty. This valuable record elicited another on the same subject from Mr. Guyon, who relates (Zool. 2396) that a similar monster ray had been seen by Captain Triscott, when in H.M.S. Diana, in the Gulf of Mexico. In an anonymous pamphlet, published during the present year, and containing recitations of most of the newspaper accounts of Sea-Serpents, the authors relate an instance of a ray having been taken near Guadaloupe, which measured twenty feet across the back. These huge fishes bask on the surface of the ocean only in fine summer weather, and move the continuous lateral fins gently up and down. Such a creature, fifty feet in length, seen on the surface, with the sharp pointed head above water, and the long line of fin offering its undulations alone to view, is far more likely to have been denominated a sea-serpent than the floating spars, sharks, sea-weeds and seals, which last year were contending for the honour.

In the Appendix, a part of the work commencing with the present

volume, Mr. Couch has described (App. xxvi), under the name of *Brama pinna-squamata*, a new species of bream, taken on the coast of Cornwall, and (App. xxix), under the name of *Scomber punctatus*, a new species of mackerel, taken in a seine off Looe, on the 6th of July, 1848. These are valuable additions to the Ichthyology of Britain.

In *Insects*, as usual, we have had the greatest amount of novelty; and the most elaborate papers, as was the case last year, relate to Micro-Lepidoptera, and are from the indefatigable pen of Mr. Stainton. This gentleman has published a monograph of the European species of *Argyresthia* (App. i); a description of a new British species of the same genus (App. xl); a systematic catalogue of Micro-Lepidoptera, from which I have extracted descriptions of twenty-eight new British species (App. lxi). Mr. Sircom has also described three new British Micro-Lepidoptera (App. xlii). Mr. Smith has described, with his accustomed careful accuracy, two new British *Nomadæ* (App. xli), one *Ceratina* (App. lvii), one *Megachile*, one *Osmia*, one *Halictus* (App. lviii), and four *Andrenæ* (App. lix); all of them new to Britain, and all but one new to science. Mr. Bold has described (App. xxiv) a new British *Colymbetes*. Mr. Walker has described (App. xxxi and xliii) no less than seventy-nine new British species of *Aphis*. The occurrence of *Rhodaria sanguinalis* at New Brighton, as recorded by Mr. Doubleday (Zool. 2547) is an interesting fact in the Natural History of Britain.

The Appendix to which I have just alluded was commenced with a view of giving to Monographs, and other papers of a scientific and technical character, that prominence which all careful and elaborate productions deserve, and at the same time of avoiding all clashing between such papers and the more amusing details of the economy of living animals. I believe this arrangement has given general satisfaction, and I purpose continuing it during the ensuing year.

The subject of nomenclature has received some attention during

the later months of the year. In the August number I reprinted a document on this subject which had been issued with the signatures of nine of our entomologists, and had been extensively circulated: I attached to the reprint (Zool. 2549) a brief observation of my own. The matter was discussed at greater length, and my remark criticised with more seriousness than it required, in a paper read by Mr. Stainton before the Entomological Society, on the 3rd of September, and reported *in extenso* in the October number (Zool. 2579). In this paper, the principal point advocated by Mr. Stainton is the absolute authority of the law of priority, irrespective of casual error, inadvertent reiteration, or want of uniformity in termination. Taking an exactly opposite view of this absolute authority of a law, the authors of the admirable catalogue of Oxfordshire Birds actually change the earliest published name of a bird, because they consider a subsequently published name more appropriate (Zool. 2599).* The right path appears to me to lie between the absolute restriction and the unfettered license. As to the uniformity of termination in certain groups of Lepidoptera, it was a classical and elegant design on the part of the great founder of scientific nomenclature, and the carrying out of this design by the disciples of Linneus is a tribute to his merit as graceful as it is just. It seems to me that there are certain prescriptive laws of nomenclature by which the majority are willing to abide, and that all attempts to improve them fail in their object: this is not a matter of necessity, but a very probable consequence, since the prescriptive laws result from the collective wisdom of naturalists during three quarters of a century; the modified printed laws generally emanate from a single individual, to whom the subject is comparatively new, and to whom certain unavoidable difficulties and contradictions in

* This change appears to me objectionable on a second ground: the name selected (*Andalusica*) conveys an erroneous idea, the bird being common to Europe, Asia and Africa, and, although met with in Andalusia, being a rarity in that province; and I learn from good authority that its sojourn in the open country is exceptional, or perhaps more properly seasonal: no error would therefore be propagated by the earlier, while an error is propagated by the later name. I merely notice this as exhibiting the danger of assuming the right of selecting, since scarcely two naturalists will agree in the selection.

the prescriptive code have presented themselves. In connexion with the subject of nomenclature, I must take this opportunity of strongly recommending Doubleday's List of British Lepidoptera, which has just issued from the press: it is the most carefully elaborate publication of the kind I have ever seen, and has cost the author a really enormous amount of time and labour: I sincerely hope that all entomologists will adopt it for their arrangement, and that all future lists will be written as well as printed on a similar plan.

My readers will, I trust, be pleased with the regularity with which official Reports of the Zoological, Entomological and Microscopical Societies are now published in these pages. It has always been my wish to accomplish this, but I have heretofore met with considerable difficulty in obtaining the reports. It is gratifying to find so great an increase of visitors to the gardens of the Zoological Society, in Regent's Park,—an increase, I believe, almost entirely attributable to the zeal, judgment and assiduity exercised by Mr. Mitchell, in his office of Secretary. I consider these gardens a valuable addition to the rational amusements of our citizens, and highly deserving of public patronage and support. The Entomological Society appears also to be prospering; and I trust we shall find, when the President delivers his annual address, that great increase in the number of members has taken place. To the Microscopical Society we are indebted for completely negating (Zool. 2616) the extraordinary hypothesis that cholera is caused by a fungus: it seems that the originators and supporters of this hypothesis erred simply from a deficiency of knowledge; the suspected bodies being of various but well-ascertained origin; existing at all seasons and in a diversity of media; being taken into the stomach with bread and other ordinary food; and passing through the intestinal canal, under ordinary circumstances, quite as abundantly and as unchanged as during the prevalence of cholera.

EDWARD NEWMAN.

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THE ZOOLOGIST

FOR 1849.

On Reason and Instinct. By the Rev. J. C. ATKINSON, M.A.,
Domestic Chaplain to the Viscount Downe.

THE full meaning of the word "prejudice," as I understand it, is a notion or belief taken up and adopted antecedent to such judgment or decision of the understanding as can be come to only after careful and impartial consideration of all the bearings of the subject in question, including, of course, whatever reasons and arguments may be alleged in favour of or against each several view of it. Perhaps, then, the most unfortunate position, as regards the admission of the truth, into which the human mind is apt to throw itself, is that which may be called the position of prejudice,—a position, that is, which prevents it from reasoning on, no matter how fair the premises, lest the anticipated consequence should be the establishment of a doctrine inconsistent or at variance with certain preconceived notions, or impressions, or estimates, as the case may be. And besides that the nascent inquiry is thus as it were "burked" in its infancy, to the complete prevention, necessarily, of its resulting in the discovery or the establishing of the truth, the mind from habit becomes not only hardened in its prejudice, but increasingly less inclined to, and less capable of, the due exercise of its functions in the examination of any future question or matter of inquiry which may chance to be presented to it. Moreover, it for the most part happens that in the preconceived notion or fancy alleged in bar of the inquiry, there is, and naturally enough, some great fallacy, if not absurdity.

Thoughts of this kind have more than once been suggested to me when conversing with people on the subjects of Reason and Instinct,

and the probable possession of a degree of the former by other families of animated creation besides the human. The moment I began to contend for the doctrine that certain brutes are evidently endowed with something that is certainly more than instinct, and by no means *so* certainly less than reason, I have once and again been met with the objection, "No, I can never admit that; for if admitted you destroy a great part of the distinction between man and the brutes: you bring the latter far too near the standard of the former to be agreeable." And so ends the matter, of course; for there is no scope for reasoning when once such a position as this is laid down.

It certainly seemed to me somewhat strange that objectors of this class should not only be insensible to the fact, that they themselves were by no means taking the best way of proving their superiority as *reasoning* creatures by urging such an objection as this, but insensible, likewise, to the fact that their objection involved both fallacy and glaring absurdity. For, supposing the question raised, "Are not certain animals possessed of something which is more than instinct, and which is, moreover, either reason, or so much like it as to be easily mistaken for it?" I ask, Is it not plain that from the day of Creation the relative position of man and beast have been unalterably fixed? Whether we admit or whether we deny the animal to be endowed with certain attributes,—can our admission or our denial be in the least tittle efficient towards altering such unalterable relative position? Unquestionably not! There is the gulf which cannot be passed over between man and beast,—a gulf not placed by man, and which nothing that can be said or done by man can either narrow or bridge over. The man who has suffered from the pecuniary propensities of the Pennsylvanian "men of drab" might as well fear lest the Atlantic should be materially narrowed by the admission that, after all, there are many honest men and true in the family of Brother Jonathan,—as the sensitive stickler for human superiority over the brute creation in every point, be apprehensive lest that superiority should be affected by the concession of reasoning powers to certain members of the brute family. For facts are facts, whether we concede that they are such, or whether we dispute and deny them. If a town is currently said to be fifty miles distant from another, while in point of fact it is only forty-five, no one, I suppose, will undertake to say that these towns are actually brought nearer to one another than they were, when once the distance between them has been demonstrably ascertained to be forty-five miles, instead of fifty, as was wont to be alleged. And so with respect to the brute. If any individuals or species are

endowed, in any degree, with reason, they have been so endowed from the first; and our admission that such is the fact in no wise interferes to alter their grade in the general scale of Nature. When they were created they were placed at a certain distance below man, himself made "a little lower than the angels;" and nothing whatever—least of all accurate knowledge concerning their nature and attributes—can ever raise them nearer to the human standard than they were originally placed. Let not, then, our objectors be apprehensive lest we should raise the brutes too near the human 'vantage-ground of intellect, even if we contend that some of them at least, and under certain circumstances, may be fairly and reasonably proved to be possessed of something besides their instinct,—something that is more than Instinct, but scarcely less than Reason. Let them rather fear lest by neglecting or refusing to exercise their intellectual attributes properly, or by the undue indulgence of their faculties that are not intellectual, they should lower—not the whole human race, but—themselves in the scale of Nature, and in this way lessen the vast difference which the All-wise has placed between man, whose "spirit goeth upward," and the beast, "whose spirit goeth downward to the earth."

It is no new theory that the brute creation are endowed, in some degree or other, with the gift of Reason. Some, we know, have even gone so far as to assign to them the possession of undying souls,—partly, as it seems to me, out of a total misconception of words and passages in the apostolical writings, and partly out of what seems little better than a visionary conceit. But, passing this by without further notice (for the present at least), we may remark, that among those who have given it as their opinion that brutes are capable of reasoning, we find one or two of the acutest intellects and soundest judgments that ever shed lustre on their time and race. I refer particularly to Locke, the great author of the 'Essay on the Human Understanding' and other admirable metaphysical and philosophical works. These are his words: "It seems as evident to me that some of them"—that is, of the brutes—"do in certain instances reason, as that they have sense; but it is only in particular ideas, just as they received them from the senses. They are the best of them tied up within narrow bounds, and have not, as I think, the faculty to enlarge them by any kind of abstraction."—('Essay on the Human Understanding,' Book ii. ch. 11). Again, the author of the 'Natural History of Animals' goes even further than this. He contends, that their "natural operations are performed with a view to consequences;" that they are

“the result of a train of reasoning in the mind of the animal,”—at the same time acknowledging that their reasoning and thinking powers are “remarkably deficient when compared with those of men; that they cannot take so full a review of the past, nor look forward with so penetrating an eye to the future; that they do not accumulate observation upon observation, or add the experience of one generation to another;” and so on. While yet another writer of eminence says, “We shall readily allow that some of the inferior animals seem to have perceptions of particular truths, and, within very narrow limits, the faculty of reason.”

Now I propose, in the following remarks, to inquire how far it may be truly alleged of the brute creation, or of any part of it, that they are possessed of the faculty of reason. And, in the conduct of this inquiry, it appears to me the best plan to ascertain clearly what is meant by Reason, and what by Instinct; in other words, to lay down such definitions, both of the one and the other, as may suffice to show most plainly the difference there is between them; and then, by bringing the actions of animals to the test thus afforded, to prove whether they are not—at least in some cases and in some degree—referrible to Reason, and not simply to mere Instinct.

In the first place, as to Reason. The same writer from whom we have already once quoted speaks thus: “The perception of Truth, as it is in itself, is commonly ascribed to our rational faculties; and these have, by Locke and others, been reduced to two,—Reason and Judgment. The former is said to be conversant about certain truths; the latter chiefly about probabilities.” Dr. Reid says, “We ascribe to Reason two offices, or two degrees: the first is, to judge of things self-evident; the second, to draw conclusions that are not self-evident from those that are.”

Secondly, as to Instinct. Instinct is a certain power or disposition of mind, “by which, independent of all instruction or experience, without deliberation and without having any end in view, animals are unerringly directed to do spontaneously whatever is necessary for the preservation of the individual or the continuation of the kind.” “Instinct,” writes the author of ‘Ancient Metaphysics,’ “is a determination given by Almighty Wisdom to the mind of the brute to act in such or such a way, upon such or such an occasion, without intelligence, without knowledge of good or ill, and without knowing for what end or purpose he acts.” One more quotation, which serves as it were to bring together and contrast these two sets of definitions, and we will be content: “Actions performed with a view to accomplish a

certain *end* are called *rational* actions; and the end in view is the *motive* to their performance. *Instinctive* actions have a *cause*, viz., the internal impulse by which they are spontaneously performed; but they cannot be said to have a *motive*, because they are not done with any *view to consequences*. Thus a man gives charity in order to relieve a person from want: he fights for his country in order to repel its enemies. Each of these actions is performed from a *motive*, and therefore they are *rational* actions. An infant is impelled to suck the breast, but he knows not that it is necessary for his preservation. It is an action that has no *motive*, and therefore is not rational; but as it is performed by a spontaneous exertion of the infant it is not to be attributed to mere *mechanism*:* it is therefore an *instinctive* action."

The first question, then, is, Do the brutes, or any of them, in addition to their "*instinctive actions*," perform others which may rightly be termed "*rational actions*?" Do they ever, in any part of their conduct, afford instances of actions—over and above those performed in virtue of that internal impulse which causes their spontaneous accomplishment—that give evidence of their having been done with some *end in view* as a *motive* to action? Do they ever appear to judge of or draw conclusions from things self-evident? And, in answer to these questions, I think abundance of instances may be alleged which will fully warrant an unqualified affirmative reply. Take the dog, the horse, the elephant, the pig,—even the ass and the goose, creatures whose names are proverbs for stupidity and simpleness,—and hosts of examples may be produced of actions performed by them that are clearly rational, inasmuch as they are characterized by regard to an end, by connexion of effect with cause, by evident judgment on matters of fact.

With respect to the dog, so many are the tales on record, which would amply serve our purpose, that one is at a loss to select from them. I will, however, instead of selecting from any that may be already before the public, rather mention one or two instances which have occurred under my own observation, or been narrated to me by a late officer of the Indian army, who was fully assured of the entire truth of his narrative. To begin: I was one day fishing in the Wye, accompanied by a Scotch terrier, the property of a neighbouring clerical friend. While I was engaged in my pursuit, Pepper was busy hunting a narrow bed of reeds just below me. In a few moments I

* "The action of breathing is *mechanical*, being performed without either motive or spontaneous exertion."

heard the plunge of a water-rat which he had disturbed. I listened for the plunge of the dog ; but to my surprise—for I knew him by no means slack in the pursuit of such game—it did not follow. I turned to see the reason, and it was at once apparent. The dog had, the moment the rat plunged, gone four or five yards down the bank ; and there he stood at the edge of the water, one foot up, ready to dash upon his victim the moment it appeared at or near the surface. In another second I saw him make his spring, and a few moments later he was at my feet with the dead rat in his mouth. Now, surely we cannot say that the dog acted thus by instinct. We cannot say he acted “without intelligence,” “without any view to consequences,” “without knowing for what end or purpose he acted,” or even “without deliberation” and “independently of experience.” For why did he not dash into the water in instant pursuit ? Why did he not run upstream instead of in the contrary direction ? Why, because he must have “judged of self-evident things” and “drawn conclusions from them,” viz., *that in the water the rat would very likely elude him,—that the rat would not swim AGAINST, but WITH, a tolerably strong current,—*that the rat must emerge some little way *down-stream*, therefore,—and that, if he went down to be ready, he would be sure to capture his prey ; this being the end and motive of the action of his in question. I might mention several other instances of sagacity, as they are generally called, presented in the actions of this same dog. But I will rather go on to one performed by another, a retriever—to use the name given in sporting phrase. His master was shooting in a preserve in Norfolk, which, like multitudes in some parts of that county, was surrounded by a kind of earthen or turfen wall, with holes or meuses cut at intervals at the bottom of the wall, to allow of the free exit and ingress of the game. The sportsman shot at and wounded a hare, which, however, contrived to make its escape through one of these holes, and was not seized by the retriever until it had gone to some little distance on the common which bordered the preserve. On returning to the wall with the hare, the dog endeavoured to leap the wall, as it had done when coming out in pursuit. The weight of the hare in its mouth, however, rendered the endeavour fruitless once and again. The dog soon discontinued its useless efforts, but instead of returning—like a creature *sans* resources—to its master without his game, he quietly trotted along to one of the meuses, laid the hare down at the outlet, pushed it as far through as he could, and then, easily leaping the wall, seized the hare on the other side, dragged it through, and carried it to its destination. Was all this

done by mere instinct?—or, rather, was not this judging of and drawing conclusions from self-evident things, and truly acting for a given end or under a given motive? Once again: a gentleman connected with the Newfoundland fishery was possessed of a dog of singular fidelity and sagacity. On one occasion a boat and crew in his employ were in circumstances of considerable peril, just outside a line of breakers, which—owing to some change in wind or weather—had, since the departure of the boat, rendered the return-passage through them most hazardous. The spectators on shore were quite unable to render any assistance to their friends afloat. Much time had been spent, and the danger seemed to increase rather than diminish. Our friend, the dog, looked on for a length of time, evidently aware of there being great cause for anxiety in those around. Presently, however, he took to the water and made his way through to the boat. The crew supposed he wished to join them, and made various attempts to induce him to come aboard; but no! he would not go within their reach, but continued swimming about a short distance from them. After a while, and several comments on the peculiar conduct of the dog, one of the hands suddenly divined his apparent meaning: “Give him the end of a rope,” he said, “that is what he wants.” The rope was thrown,—the dog seized the end in an instant, turned round, and made straight for the shore; where, a few moments afterwards, boat and crew—thanks to the intelligence of their four-footed friend—were placed safe and undamaged. Was there no reasoning here? no acting with a view to an end or for a given motive?—or was it nothing but ordinary instinct? Nay, a man who had acted with such forethought and presence of mind would have been thought worthy of high commendation for the intellectual superiority so manifested at the hour of need. And will it not savour something of unfairness if we deny similar credit to the sagacious and intelligent dog?

So far, then, and going on the sure ground of laying down precise definitions of Reason and Instinct,—definitions, moreover, not framed by ourselves, or with any reference to any particular theory of our own or other men’s,—and then testing, by a reference to these definitions, actions which must come under the one or the other of them, so as to prove under which of them they do come, I think we may venture to say that instances have been alleged in which individuals of the dog tribe evidently performed “rational” actions. These instances might be multiplied to an almost indefinite extent from the volumes and parts of volumes which have been composed on the subject of the intelligence and sagacity of the dog. May we not therefore assert, that,

as regards this family of the brutes, our questions are answered in the affirmative.

Now I do not know that it is altogether necessary to adduce recorded instances of the sagacity of divers other animals,—for instance, the horse or the elephant. Every one knows there is no lack of them. And I think it an assertion which may be very safely made, that if we apply the same test to these instances as we have already done in the case of the dog, we shall meet with the same result; that is to say, we shall make good the point that both the horse and the elephant, in multitudes of recorded cases (and in multitudes more unrecorded, doubtless), have manifested by their conduct that they are not only impelled by instinct in general, but also capable of rational actions. Again, as regards the pig: when you see one or more of these animals, having lost their companions, and engaging in a regular search for them by scent, on their coming to the meeting of three or four tracks, try first one and then another, and, if in vain, take the remaining one without similar trial,—what are you to infer? That they act as they do by instinct? Nay, surely, but by induction; by drawing conclusions from things self-evident, viz., that since their missing companions have not taken either of the roads they have tried by scent, they *must* have taken the other: and this is an observed fact.

Now it may have occurred to the reader, that all the instances which have been adduced or referred to are in connexion with a peculiarly designated class of the brute creation; namely, such families and species as are more or less familiarised with man, more or less accustomed to his society, as it were, or to his influence. I believe, from the results of observation which has been directed to the subject now for many years, that you will meet with comparatively but few instances of what we believe is reason in the brute, among such as have not been domesticated, or at least accustomed to feel the influence or observe the actions of man. The wild elephant and horse—how different the history of their demeanour and actions from that afforded in the case of the same animals when domesticated! You may certainly meet with what looks like—if I may be allowed the use of such language—untutored intelligence, or nascent power of reasoning, in some of the actions of certain wild animals under certain circumstances; the horse and the buffalo, for instance, when their herds are exposed to the attacks of beasts of rapine, or the fox in pursuit of its prey. But still they are very far from coming up to such instances of evident and close ratiocination as those upon which we have been commenting. In fact, we believe that the thoroughly developed power

is confined * to those creatures which have come into contact with him, who, as the poet says, "in reason" is so "noble." The question, How far, or to what degree, are they possessed of the power of reasoning? is one by no means easy satisfactorily to answer. It involves comparisons which require the nicest calculation and considerations of a highly complex character; and perhaps, after all, it might not be practicable to arrive at any very definite conclusion. One thing, however, is certain, that if entered into here it would expand the present observations beyond anything like moderate limits, and still possibly fail of meeting with proper discussion. At some future time, however, we hope to return to it.

It may, perhaps, be objected, as regards the soundness of the conclusion we have come to, that our reasonings are not supported by a sufficient array of facts,—that we have arrived at our induction without having examined the requisite number of individual phenomena. Our reply must be, that if this seems to any one to be the case, we have at all events given a full and practical account of the way in which we have arrived at the conclusion: we have, so to speak, put our own formulæ and means of calculation within the reach of all and every, objector or not. Let the objector take the first volume he meets with of records of animal sagacity, and test the actions described by a reference of them to the definitions given above, and I have not the slightest doubt that long before he has gone through one half—nay, one-tenth part—of the instances given (one little book, we believe, professes to give five hundred !), he will own himself amply satisfied

* Since writing the above I have had the opportunity of looking into Mr. Couch's 'Illustrations of Instinct.' With the appearance of considerable discrepancy between his views and my own, I am yet inclined to think there is at bottom much more of real coincidence, when he says "I have purposely avoided drawing any illustrations of intellect from the history of the dog; because, however sagacious many of its actions are, an objection might be raised that its proceedings are influenced by the long-continued habit of receiving instruction from man."—(p. 187). This goes the whole length of what I have contended for above; while, as I conceive, what I have called "untutored intelligence or nascent power of reasoning" differs not very widely from the capacity to "pursue a process of reasoning from facts or principles recognized by themselves," (p. 197), which he claims for animals (in general); inasmuch as, in his preface, he expresses an opinion that "if a *higher degree of training* were founded on a close study of their (the animals') individual faculties, the result would be of importance to human interests." I trust I may be allowed to take this opportunity to express the pleasure which the as yet unfinished perusal of Mr. Couch's book has given me: I cannot but think it a valuable contribution in aid of the pursuits of the practical naturalist and observer.

with the conclusion that such animals at all events as are habituated to association with, or to the influence of, man, however exercised, possess besides their instinct a very sensible amount of reason. I do not say that this process would be altogether so simple and plain that the indifferent or careless inquirer should never blunder or trip : on the contrary, I think there is often a sufficiently appreciable degree of difficulty in distinguishing between the promptings of Instinct and the workings of Reason. Indeed no mind but that accustomed to the consideration and use of definitions will find it at all easy to make the distinction, even so as to satisfy itself eventually. Moreover, writers on the subject allow themselves great latitude in their expressions ; and this produces inaccuracy and leads to misconceptions, especially with that numerous class to whom it is a rare and somewhat distasteful task to think for themselves, or really to think at all. As an example of what I mean,—some would assign to birds the exercise of a low degree of reason in the construction of their nests, particularly in their attempts to conceal them. I think, on the contrary, that this is a purely instinctive operation,* and I hold it proved by the fact that the first nest constructed by a bird is as perfect in shape, design—if we may so speak—and fabric, as any future one. Instances have even been affirmed in which the first nest appeared to be the best. I think it instinct, too, which—in case of discovery of the nest—prompts the endeavour to conceal it, by whatsoever expedient. I think it instinct, and not reason, which leads the partridge, the grouse, the peewit, to act as they do when surprised, with a brood of young ones about them, by either man or dog. And, on the other hand, I incline to the opinion that it is not even instinct, far less reason, as some think, which induces the hare to maintain its seat, instead of hastily making its escape, although very nearly approached by the intruder. I strongly suspect, not that it is simply terror (See ‘ Illustrations of Instinct,’ 202—204 ; Zool. 295) so much as indecision, or animal loss of presence of mind, which prevents instinctive action ; and every time I have had an opportunity of verifying the fact, the animal that so conducted itself was a *young* one. The cases mentioned in Mr. Couch’s book, just referred to, are of a different character, and his conclusion seems quite satisfactory. The fox did not simply remain inactive, as the hare does, but presented the semblance of death, which the hare does not ; and I certainly think terror is a more satisfactory means of accounting for the fact than the animal’s

* Certainly, if tried by the definitions of Instinct, it is.

cunning or subtlety. There is marvellous little subtlety, as Mr. Couch intimates, in lying still to be taken up by the tail, when a moderate use of the four legs would instantly place their owner in safety.

But still, though the distinction between reason and instinct, and the actions originating in each, not very easy in itself, is rendered still less easy to many by that vague use of terms which we have just referred to, there is no doubt that common attention and accuracy will enable any one to satisfy himself, in the way above suggested, concerning the question which forms the subject of these observations; that is to say, if he thinks our adduced instances insufficient in number, or too unsatisfactory in themselves, to furnish the necessary substantiation for the conclusion we have come to, as to the undoubted possession—by certain families of the animal creation—of the gift or power of reasoning.

J. C. ATKINSON.

Danby, Whitby,
November, 1848.

Occurrence of a Foreign Bat in Orkney.—About September, 1847, a bat was caught, by some people digging potatoes, in the island of South Ronaldsha, and it was kept alive for some weeks, on sugar and water I believe. It was considered a very great curiosity there, though any bat would have been equally so. I obtained the kind permission of the Rev. John Gerard to take it to London for examination. Mr. Waterhouse informs me that Mr. Gray believes it to be a large specimen of *Vespertilio pruinus*. It is a native of North America. Its general appearance is not unlike the Noctule: the general colour may be called badger-like. A bat is a very likely animal to be brought in a ship: insects we know are brought from America to Liverpool in great plenty.—*John Wolley*; 3, *Roxburgh Terrace, Edinburgh, November 16, 1848.*

Cats and Nemophila insignis.—Having read in the 'Zoologist' (Zool. 2252 and 2289), of instances in which cats are represented to have destroyed the *Nemophila insignis*, I think it but right to the feline race to say that such is not the case with all; for in the garden at the house in which I live, the plant in question occupies a most prominent position, it being the border to a long walk,—and although the garden is the rendezvous of the whole street for courtship and fighting, yet I have never observed (and I look rather closely to such matters) a single instance of their even touching the plant. May not the cases in question be the exceptions, for I cannot learn from any of my friends of a like complaint against Pussy?—*Alfred Rain*; 14, *West Derby Street, Liverpool, December, 1848.*

Note as to the Stoat changing its Coat.—Mr. Briggs inquires (Zool. 2282), "whether the 'pied' stoats are merely varieties of the common species, or individuals changing from their winter to their summer coats?" Stoats commence changing their coats

about the end of December; by the end of January they are about "half-and-half," and by the beginning of March are quite white. The best method of ascertaining the truth of this will be for him to examine the keeper's "racks" through the winter, when I have no doubt he will find this statement correct.—*J. B. Ellman; Rye, November 7, 1848.*

Weasels hunting in Packs.—There have been several communications (if my memory does not fail me) in the 'Zoologist,' with regard to weasels hunting in packs; perhaps the following may be deemed worthy of a place in that periodical. John Skinner, a labourer of my father's, informs me, that one day, about noon, while sitting in a field of corn which he had been cutting, he observed a hare run quickly past him, which was shortly after followed by nine or ten weasels; he thinks that they were two old ones and their family: they were uttering a low cry like fox-hounds.—*Edward Peacock; Messingham, Kirton Lindsey, Lincolnshire, December 13, 1848.*

Are Moles injurious or beneficial to Farmers?—The subject having been again noticed by Mr. Briggs (Zool. 2280), I venture to add a few observations, but chiefly in reply to the paragraph at page 2009. It is undoubtedly true that in some soils moles will do a vast deal of good, while in others they cause more mischief in working the soil than counterbalances the good they do in destroying wire-worms, &c. On stiff soils (and these I believe are very prevalent in Essex) they will do a great deal of good, by loosening the earth and thoroughly draining it by their subterranean galleries, thereby rendering them much lighter, and consequently more productive. Such I presume to be the nature of the Rev. Mr. Wilkins' land; and if so, the more the earth is worked so much the more will they improve and lighten it. But some soils—for instance, the downs and highlands and some pasture-lands of Sussex—are so light and loose, that the farmers are compelled to roll and press the ground over and over again, with the heaviest rollers they can procure, in order to render it firm, otherwise there would be no protection for the root of the young plant as soon as it is up, —the stalk would grow weak, the ears would be thin, and a moderate July breeze would lay the whole field. Of what use, then, would a mole be in this case? If Mr. Wilkins had taken a living among the Sussex Downs, I expect he would not have been so strenuous an advocate for the encouragement of moles, as I fear he would have found that "the remedy was worse than the disease." In conclusion, I say it is with the question propounded at the head of this paragraph as with the greatly disputed question of draining, "No general rule can be laid down as to what is best to be done, but each farmer must use his own discretion, by considering the nature of his soils, and act accordingly."—*J. B. Ellman; Rye, December 1, 1848.*

Occurrence of the Black Rat in Devonshire.—A few days since a specimen of the black rat (*Mus Rattus*) occurred at Salcombe, a few miles from Kingsbridge, and is now in my possession: in this part of Devon they appear to be almost exterminated.—*H. Nicholls, Jun.; Kingsbridge, South Devon, October 1, 1848.*

The Hamster not in Orkney.—We see a report, copied from one book to another, that the hamster is naturalized in South Ronaldsha, having been brought there in a Norway vessel, which suffered shipwreck. After much inquiry in that island, I came to the conclusion that this is a mistake. The black rat, as well as the common rat, is found there; and the black rat is there called the blue rat, which name is well applied from the colour of the animal. One man told me this blue rat was said to have come in a shipwrecked Norway vessel: hence I think the story is traced to its origin.—*John Wolley; 3, Roxburgh Terrace, Edinburgh, November 16, 1848.*

The Rein Deer in Orkney.—A small pair of horns of the rein deer, still attached to part of the skull, were found in the island of Sanday not long ago, and are now in the Kirkwall Museum. At the back of the skull there are still traces of ligament, which would indicate the relic to be of no great antiquity. It is said that rein deer were once introduced into these islands, and that it was so appears probable from their horns not being more frequently met with in the more modern formations of our islands. Owen tells us, nevertheless, that at one period—that of the hyænas—they did exist here.—*Id.*

The European Elk.—This animal has escaped a place in any of Mr. Van Voorst's series of books illustrative of British Natural History; yet that it should not have been a contemporary of the wild bull, the aurochs and the rein deer, in our ancient forests, seems, *à priori*, improbable: accordingly we find its remains have been discovered in Scotland. Mr. Owen mentions a donation to the Royal Society of Edinburgh, of "a painting in oils of the head and horns of an elk, found in a marl-pit, Forfarshire," but he suggests that they belonged to a rein deer, not having seen them. The painting now in the College Museum of Natural History is evidently that of the head and horns of the European elk,—not of the great Irish deer, the rein deer, or the fallow deer.—*Id.*

The Red Deer in Orkney.—This animal was in all probability extirpated by man. In the Museum at Kirkwall are three or four fragments of antlers, found in Pictish towers, in different parts of the country. Its horns are very common in the peat. In Shetland its remains are, I believe, unknown.—*Id.*

Remarkable Hybrid.—"This remarkable filly (seven months old) was found a short time since in the New Forest, and is evidently of a mixed breed between the horse and the deer. Her mother, a pony mare, was observed to associate with some red deer stags in the New Forest for some months, and at last this foal was seen by her side. The nose shows a proximity both to the stag and horse: her forehead is round, like that of the deer: legs slender and distinctly double: hoofs pointed and partly double: colour brown, lighter under the belly; and tail like a deer. This extraordinary animal is the property of T. G. Attwater, Esq., of Attwater, at the village of Bodenham, three miles from Salisbury. Dr. Fowler, of that city, has inspected the hybrid, and is quite satisfied of the correctness of the preceding statement; and Colonel Buckley, a keeper of the New Forest, has likewise seen the animal, and is of a similar opinion."—*Illustrated London News,* December 9, 1848.

[This statement is accompanied by a figure drawn by George Landseer, which bears sufficient evidence of its fidelity, but which, excepting in the shortness of its tail, does not differ from the portrait of any ordinary foal. I should much like further information on the subject: at present I am disposed to discredit the possibility of a hybrid between a soliped and a ruminant animal. The description quoted above is most unsatisfactory.—*Edward Newman.*]

Combat between a Bull and a Stag.—The 'Salisbury Herald' states, that, a few days since, at Ashton Keynes, in that county, a two years old bull and a fat stag furiously attacked each other, and fought till the latter dropped dead, covered with wounds, and it was with the greatest difficulty that the victor was removed from the dead body of his fallen foe.—*From the 'Sussex Agricultural Express,' November 4, 1848.*

The Ca'ing Whale.—It seems to have been a bad season for the inhabitants of Shetland. At the time I was there, the herring season nearly over, there had hardly been one successful "ca'ing" or *driving* of a herd of "bottle-noses," as they are there called.—*John Wolley*; 3, *Roxburgh Terrace, Edinburgh, November, 1848.*

Occurrence of the Osprey at Udimore, Sussex.—A very fine adult male osprey was shot at the above place about three weeks ago by the gamekeeper of F. Langford, Esq., and is now in the possession of Mr. Henley, of the same place.—*J. B. Ellman*; *Rye, December 7, 1848.*

Arrival of Fieldfares (Turdus pilaris). In the preface to the 'Zoologist' for 1848 you mention having received several contributions touching the early arrival of the fieldfare, and you consider that the missel thrush may have been mistaken for it. Last year I was several times deceived, taking small flocks of missel thrushes for early fieldfares; but was soon convinced to the contrary. This year fieldfares and redwings were very plentiful on the 21st of October; and in order to satisfy myself as to the reality, I shot specimens of them both. Can you inform me if the colour of the fieldfare's beak depends on the age of the bird, since some I have shot had the beak dark brown, others dirty yellow.—*J. W. Hulke*; 155, *Lower Street, Deal, Kent, December 5, 1848.*

[I regret not being able to throw any light on this subject. With regard to the early arrival of fieldfares in the autumn of 1848, I am really much in doubt: several contributors still speak of having *shot* them early in September, but our best ornithologists seem of opinion that there is some accidental mistake.—*Edward Newman.*]

Occurrence of the Water Ouzel (Cinclus aquaticus) and Bearded Tit (Calamophilus biarmicus) near Hitchin.—A specimen of the water ouzel has recently been met with near this town (Hitchin, Herts): it was shot at Westmill, in the little river Orton, by the son of the tenant, who had observed it in the shallow water of the mill tail, frequently dipping after its food: it appears to be a young male bird, in perfect plumage. On the banks of the same stream, a few days since, I had the pleasure of seeing—for the first time alive—the bearded tit. I think there was a small flock of them in a bed of reeds; but a pair allowed me to approach almost close to them, and observe their movements. I do not mention the occurrence of this bird as anything very extraordinary, for Yarrell describes it as common in reed-beds over various parts of England; but I believe it has not been seen before in this locality,—long the favourite field of observation with several friends attached to Natural History and keenly on the look out for rare birds. Last winter, a large bed of reeds, which has for many years been shaded with old willows and other trees, was denuded of timber; and consequently the reeds are much stronger this season, and generally seeded: the birds appearing for the first time under these circumstances, proves that they make extensive flights in search of "fresh fields and pastures new."—*William Lucas*; *Hitchin, December 8, 1848.*

Note and Inquiry respecting the Melodious Willow Wren (Sylvia hippolais).—I have been interested by the announcement in the 'Zoologist' (Zool. 2228) of the occurrence of the *Sylvia hippolais* of Temminck near Dover, and also by the editorial remarks in the preface to the volume for 1848, relating to the probability of this bird

being one of our regular migrants in the South of England. I think it can hardly be doubted that the *number* of the species, arranged under the third section (Muscivores) of Temminck's genus "Bec-fin," which are to be found in some parts of England, is not yet accurately determined. The small size of the birds, the general similarity of their appearance, and their retiring habits, are quite sufficient to throw a degree of obscurity over the group; and when we find Temminck saying of the figures of such an ornithologist as Gould, that his willow wren (*Sylvia trochilus*) and his chiff-chaff (*S. hippolais*) are both willow wrens (see 'Manuel d'Ornithologie,' vol. iii. page 153), humbler naturalists may certainly be excused if they have confounded one species of this section with another. But I write at present to inquire if the *egg* of the true *Sylvia hippolais* (Temminck's Bec-fin à poitrine jaune) is known with certainty. I have long thought, from some acquaintance with the nidification and eggs of this group of birds, that the number of species commonly allotted to England was insufficient; and I have considered the determining of the nest and egg of each species, *with accuracy*, to be worth some attention, as being likely to assist in fixing the *number* of the species. My observations have been made, not on specimens furnished by *egg dealers*, but on those procured by myself or my friends, at various times, throughout a period of many years, in the natural habitats of the birds; and the conclusion I have arrived at is, that I possess the eggs of *four* distinct species. It is very possible that I am mistaken in my opinion, for I have not been a "bird-shooter" as well as a "bird-nester," and therefore I have not any anatomical examination of the birds themselves, wherewith to support my conclusions with respect to their eggs; but I will briefly describe my *four* varieties, and shall be glad of any information tending either to confirm or confute my views on the subject. The nest of the willow wren (*S. trochilus*), which is far more frequently found than that of either of the other species, is always constructed on the ground, as far as my observation goes. The materials are, generally, moss, dry grass and feathers. The eggs vary very considerably in size, shape and markings, but the *colour* of the markings is always the same,—that is, they are of different shades of *brick-red*. I possess specimens covered all over uniformly with pale freckles; and others passing through all the gradations from that appearance up to large dark blotches round the thick end. The nest of the wood wren (*S. sibilatrix*) is also, as far as I have seen, built on the ground; though Temminck says that it is formed likewise in the trunks of old trees. The external materials are pretty much the same as those of the willow wren, but the lining is said to be generally fine grass or horse-hair. The eggs are thickly covered over with spots and marks of *deep purple*. The nest that usually passes for that of the chiff-chaff, the *S. hippolais* of English authors, is almost always placed in a low bush, where it is mingled with tall grass and weeds, and at an elevation of about a foot from the ground. The eggs are *clear white*, with a very few *purple spots*. The form of all three of the varieties above described is more or less *oblong*. The appearance of the fourth variety differs materially from all these. I never knew it to be found anywhere but in the neighbourhood of Bristol; neither have I ever seen any specimens of it except such as came from that neighbourhood. When I resided near that city, twenty years ago, we used to find a nest in my father's garden now and then, but not very frequently. These nests were always constructed in the grass, if my recollection serves me right, and generally under the overhanging edges of the turf-borders of the walks through the shrubberies. They were true wren's nests, arched over, and with the entrance-hole in the side. The eggs were invariably *almost globular*, five or six in number, and of a *pure milk-white*.

If they ever had any spots on them, it was never more than one or two very small ones. The four specimens still in my possession are as nearly as possible *milk-white*. It appears to me scarcely possible that this should be the egg of either *S. trochilus* or *S. sibilatrix*: neither does it correspond with Temminck's description of the egg of the true *S. hippolais*; nor with the egg that passes commonly for that of the chiff-chaff. Both nest and egg very much resemble those described by Temminck as belonging to the *S. Nattereri*; but then he says *that* bird is never seen in the North of Europe. May not *Sylvia Icterina*—which frequently occurs in Holland, and which appears to be often confounded with *S. trochilus*—be also one of our occasional summer visitants? Temminck says that he has never even seen the nest or the egg of "*Icterina*," and he gives no description of them with which the egg in question might be compared. I shall end by repeating my request for information, through the pages of the '*Zoologist*,' as to whether the egg of Temminck's *Sylvia hippolais* is certainly known.—*Wm. Lean*; *Birmingham*, 12th mo. 14th, 1848.

Abundant occurrence of the Crested Tit (Parus cristatus) in Scotland.—I have heard that this rare British bird has made its appearance, during the past autumn, in unusual numbers, in Scotland. At a late meeting of the Zoological Society, Mr. Gould exhibited several specimens in the flesh,—the first instance within my knowledge of their having been seen in London in that state.—*Edward Newman*.

Reply to Mr. Briggs on the destructive power of the Sparrow.—Before I offer any comment on the communication of your correspondent, Mr. Briggs—and lest he should suppose I am "no naturalist," and therefore incapable of distinguishing between the sparrow (*Fringilla domestica*) and the hedge warbler (*Accentor modularis*)—let me inform him that there is not, I do believe, a boy 12 years of age, in this district, who would not at once tell him that the 'billy hedge sparrow' is a dull gray-brown fellow, who lays blue eggs and warbles his simple lay in the hedges; while the 'tile sparrow,' with more variegated plumage, utters his incessant chirp upon the tiles and lays a gray mottled egg. Then, as to being a "practical matter-of-fact man," I may state that, having lived upwards of thirty years sufficiently in the country to allow of the practice, I have devoted every hour that I could spare from business to the contemplation of God's creatures; and study of their habits and economy has taught me how infinitely more perfect are the arrangements of Deity, for the universal benefit of His creatures, than any which man in his folly may attempt to devise,—and, also, that infringement of His laws of compensation is invariably productive of infinite mischief. And now for Mr. Briggs' communication. Certainly the murderous plan devised by his "intelligent matter-of-fact" friends is calculated to prove something; and it seems to have proved that sparrows to the number of 3500 may find a subsistence on about 3400 acres of land: this is rather more than a sparrow to an acre. What a serious inroad must one poor pitiful sparrow make on an acre of corn! Then as to the calculation founded on the observations of these "matter-of-fact" gentlemen: one sparrow eats one quart of corn a month! twelve quarts a year!! Will Mr. Briggs allow me to ask him how he imagines the sparrow contrives to get it? During one or two months, when the corn is ripening in the ear, the sparrow may—and no doubt does—feast himself gloriously; but during winter, spring, and the early part of summer, I fear if he had nothing to eat but the grain he could collect from corn-stacks and barn-doors, his numbers would not greatly annoy even Mr. Briggs. What then becomes of his calculation? With regard to the grain found in the sparrow's crops,—if Mr. Briggs will try the experiment he will find that *any* corn exposed to warmth and moisture will

become "plump," precisely as it does under the same circumstances in the sparrow's crop. But now to the point: Mr. Briggs asks, "What is that bill" (the sparrow's) "made for? To crack grain or to pick up insects?" Both, most undoubtedly! as I will endeavour to prove. In the vicinity of my residence were some unoccupied buildings, much resorted to by sparrows and starlings, during great part of spring and summer, for breeding purposes. These buildings, about 200 yards in length, stand between an open common on one side, and corn and grass fields on the other. I have frequently watched these birds feed their young, and found that they did so *invariably with insects*. I have seen the old birds repeatedly shot at these times by tenting boys, and have taken as many as six or eight larvæ of the common brimstone moth (*Rumia crataegaria*) from one bill. I have also found larvæ of *Pontia brassicæ* and rapæ, *Abraxa grossularia*, of several species of flies and beetles, &c., &c.; but I have never, at this season, found any corn in their crops, though occasionally seeds of various kinds mixed up with other matter. In autumn I have found their crops distended with corn and other seeds, and in winter I have shot them near corn-ricks and farm-yards with corn in their crops; so that it is certain they do partially feed on corn. But I dare not say with Mr. Briggs, "if the sparrow is a grain-destroyer he ought to be destroyed," because I believe the good he does in ridding farmer's crops from myriads of destructive larvæ, &c., amply compensates for the few grains of corn he may occasionally take from him. Mr. Briggs agrees with me that the young sparrows are fed on insects: I will, therefore, endeavour to place another calculation by the side of his, which will not, I hope, be without its value. I have watched pairs of sparrows repeatedly feeding their young, and have found that they bring food to the nest once in ten minutes, during at least six hours of the twenty-four, and that each time from two to six caterpillars are brought: every naturalist will know this to be under the mark. Now, suppose the 3500 sparrows destroyed by the "Association for Killing Sparrows" were to have been alive next spring, each pair to have built a nest and reared successive broods of young during three months, we have, at the rate of 252,000 per day, the enormous multitude of 21,168,000 larvæ prevented from destroying the products of the land, and from increasing their numbers from fifty to five hundred fold! Granted the sparrow does destroy corn—let the farmer prevent him by all means; but not surely by the wholesale slaughter counselled by Mr. Briggs: let him employ the tenter. A friend of mine found that blackbirds ate his strawberries, and argued like Mr. Briggs, *ergo*, "they ought to be destroyed;" accordingly he placed rat-traps on his beds, and thus put several to a miserable death. I also caught 'blackie' feeding on *my* strawberries: I did not altogether approve the practice, but, not being desirous of punishing a creature with death for following the dictates of that instinct implanted in it by its Creator and mine, I spread nets on hoops over my beds, and thus saved my fruit, and left the blackbirds to that enjoyment of existence which was their right equally with my own. Undoubtedly the undue increase of sparrows, mice, &c., is attributable to the indiscriminate destruction of hawks, owls, &c., by ignorant gamekeepers; but must we therefore imitate their pernicious example, and, by still further carnage, most probably let loose myriads of noxious insects to devastate our woods and fields? No! let us rather try to teach men that the sparrow and hawk have each their office,—each forms a link in the great chain of compensation. And let the "Society for Killing Sparrows" beware, lest, when they find their turnips devoured by hosts upon hosts of creeping things that they can neither shoot nor trap, they may wish they had paused in their work of destruction, and left a few of their

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poor enemies—the sparrows—to rid them of the pest.—*John Hawley ; Doncaster, November 6, 1848.*

Reply to Mr. Briggs on the destructive power of the Sparrow.—Being one of those who think that nothing was made in vain, but that everything, in its proper place, has its beneficial use in the wise arrangements of the whole,—that other opinions are held by many I am well aware ; but how often, when the why and wherefore is examined, do we see it to be pounds, shillings and pence that are interfered with ! and when such a party does investigate any subject—for instance, the food of sparrows—how often is it done partially, looking with a microscopic eye for causes to condemn, magnifying the evil, real or apparent, while every good property is either cast into the shade or altogether overlooked ! Now, I am afraid these matter-of-fact men, who have formed themselves into an Association to kill so many sparrows in a given time, or submit to a fine, are of this class ; because the evils enumerated by your correspondent, Mr. Briggs, are enlarged to an unwarrantable extent. That the sparrows do destroy grain during a certain period of the year none will deny ; but that they rob the agriculturist during twelve months is too bad ! Since reading Mr. Briggs' letter I have waited upon three of our most eminent and enlightened farmers in this district, for their opinion on this subject ; and they agree on one point, that six weeks is the very outside (but two of them think a month nearer the truth) that sparrows do in any way injure the agriculturist. But say six weeks ; this reduces the evil to an eighth part, which will reduce the quantity destroyed by a thousand sparrows to 5 quarters, 6 strikes, 1 peck, which, at the assumed price of 35s. per quarter, would be £ 10 2s. 4d., instead of £ 84. as stated by Mr. Briggs. But it may be asked, where do they obtain the grain found in their stomachs during the other period of the year ? Need we say that sparrows are foul feeders, and that wherever we see the exuvia of animals fed on grain we are almost sure to find sparrows feeding : and we think they pick up much in the fold or stubble-fields that would be trodden under foot, or otherwise wasted, if they did not get it. As it regards robbing the corn-ricks, it must only be stray heads,—for it is well known that the ears of corn are placed inward and the straw towards the outside,—and it is very likely these would either perish by the weather or be devoured by mice. Is it not more likely, when they are burrowing up to the tail in ricks, that it is either for warmth or in quest of insects ? But Mr. Briggs says, he never found insects in any of the stomachs of the 1000 sparrows examined. How were they examined ? was it by a microscope ? without it how often are we deceived. Often what I have thought was a concrete mass of sand and other matter has proved to be the remains of insects when examined by a microscope ; and it is well known, or ought to be, that insects are assimilated into the system much sooner than grain. How often do we see grain, berries, seeds, &c., voided, apparently entire and uninjured, while in the meantime all traces of animal food are gone. But it may be said that proof positive is wanted that sparrows do feed on insects. As your correspondent has pointed to the bill of the sparrow, as a proof that they are granivorous and not insectivorous, may we be allowed to point to the pheasant, partridge, and our domestic Gallinæ, which eat insects whenever they can obtain them. And, again, we have a case in hand showing that the formation of the bill is not in all cases conclusive as to what the birds feed upon. Look at the account, by your correspondent Mr. Smith, of the roller taken at Banff, whose crop was filled with insects ; yet the whole of the roller family have stout bills, sufficient to enable them to eat any grain. Now, it would appear that grain-feeders can and do eat insects, but that many of the insectivorous birds cannot

eat grain, or, in other words, are not omnivorous: but I have seen sparrows, while on the wing, take meadow Tipulas, moths, butterflies, &c. On one occasion, when a boy, I was placed in "durance vile" for an offence: it happened to be in a room the window of which overlooked some neighbouring yards, in one of which was a common bakehouse: under the eaves were two sparrow-nests, and, not having any other part of animated nature in view, I set myself the task of counting how often the sparrows visited their nests with food during half an hour. One male bird, which was darker than the other, thus enabling me to distinguish him, captured fourteen flies on the wing, and the four birds went from their nests to a water-spout and back 104 times. Now, so soon as I obtained my liberty, I went to the place to see the object of attraction, and found it to be a large, dead cat, entirely covered with the larvæ of (I suppose) the blue-bottle fly. Now, if they are as prolific as the common house-fly, which is computed to produce in one season no less than 20,000,000,—but say in round numbers 20,000,000,—thus were prevented, by the capture of fourteen flies, the amazing number of 280,000,000; and by the destruction of the 104 larvæ, in the same ratio, 2,080,000,000: now if this be a correct calculation, what an amazing quantity of insects 3500 sparrows will destroy in one season! Would it not be better to lay aside for a time this killing propensity, at least until our late sanitary enactments come into full operation, and until dunghills are removed, sewers cleansed, and the filthy fold-yards cease to pollute the atmosphere—no longer suitable places for the production of such myriads of insects as are now produced? These are the principal places where they breed; and as hedge-sparrows and robins leave our abode at this season of the year for nidification, it would appear that the house-sparrow is the only bird, or nearly so, to keep these troublesome insects in check. I will give you another fact. While taking a walk in Newton-Cap Park, in the spring of 1847, the gardener came and asked me to go into the gardens to see the state of the fruit-trees, caused by insects which he said had been brought by the east wind. It was just after the cold wet weather in April and May, which caused us to have so few of our summer visitants: and although he had two women and a boy employed every day to destroy the insects, yet many of the trees were denuded of almost every leaf: the cause I pointed out, and advised him not to destroy the birds (as I was aware he had killed some), but to sow his seeds a little deeper, and employ a boy to prevent them eating his peas, &c., when they made their appearance above ground. Some nine or ten days after I saw him again, when he told me that the sparrows from the old hall adjoining had found out the pests, as he called them, and had done more in clearing the trees in a few days than the people employed had in as many weeks,—and that for the future, instead of killing them as enemies, he would do what he could to protect them. Here we see the good and evil placed in a balance: I think the good considerably preponderates; and still hope that the impartial investigator will think that Yarrell, Jesse and Knapp are right.—*Joseph Duff; Bishop Auckland, November 15, 1848.*

*Remarkable instance of Sagacity in the common House Sparrow (Fringilla domestica).—*This morning it happened that a sparrow had got his head fixed between two tiles, which were placed perpendicularly against a wall in our garden, so as to completely prevent its extricating itself, when, on being discovered by its companions, several of them, by their united efforts, endeavoured to extricate him by laying hold of his head with their beaks and flying backwards, but without effecting their purpose. Their earnest solicitude for their brother in affliction, coupled with the awkwardness

of the position, soon caused the death of the unfortunate bird. After extricating him, by means of a pole, I found the head quite bared of the feathers, so earnest were his mates in their attempts to release him.—*William H. Tugwell, Jun.; High Street, Reigate, Surrey, November 24, 1848.*

Late stay of Swallows (*Hirundo rustica*) at *Rye*.—On the 13th of November I saw two young swallows. On the 14th the same again. On the 17th I saw another. On the 18th the same again. On the 28th I saw nine. On the 29th the same again: these were the last I saw. None of these were our swallows, which departed long before.—*J. B. Ellman; Rye, December 6, 1848.*

Note on the Partridge (*Perdix cinerea*).—When shooting, in December, 1841, near Hatfield, in Lincolnshire, I saw a pack of partridges, probably forty in number: they were very wild, and it was quite impossible to get near them. I was told that it was not at all an uncommon occurrence in that district. It is the first and only instance that has fallen under my own observation.—*Beverley R. Morris, A.B., M.D.; York, November 22, 1848.*

The Black Grouse (*Tetrao Tetrix*) *breeding in Devonshire*.—This bird breeds regularly, but in very limited numbers, on the high ground between Axmouth, Devon, and Lyme Regis, in Dorset; and in 1845, when passing through Taunton, in Somerset, in September, I saw a male bird, at the hotel at which I stopped, which had been shot in that neighbourhood the day before. The landlord told me that some were shot there every year.—*Id.*

Note on the Tail-feathers of the Green Sandpiper (*Totanus ochropus*).—In his description of this bird in the 'Naturalist's Library,' Sir W. Jardine describes the three outside tail-feathers thus: "The third from the outside with only two (distinct broad black bars towards the tip). The second with a spot on the outer web, the exterior feather entirely white." In my specimen—I have but one—the third feather from the outside has one distinct bar, and two dots on the outer web; the second, one imperfect bar, and one dot on the outer web; the third, one very obscure bar, and one dot on the outer web. My specimen has all the appearance of being an old bird, and is in fine plumage. I have no doubt that in birds of a certain age these marks would be found uniform. Of what age is my specimen? and which is the older bird, Sir W. Jardine's or mine? Or are these the distinctions of sex? It may be thought hardly worth while to notice such trifling differences; but any *fact*, however small, is of some value, and, in the confessedly imperfect state of our knowledge as to the changes of plumage in the sandpipers, may assist in ultimately elucidating the subject.—*Id.*

Occurrence of the Common Crane in Shetland.—I saw one of these birds on the mainland of Shetland, on the 14th of August last. At that time it was very shy, and my only chance of getting a shot at it was spoiled by a hooded crow, which got up and gave the alarm; but I had a good view of it with my glass. I watched it for some time, during which it stood with its neck raised and the feathers pressed close to the body, just like a heron when alarmed. It flew like the stork and spoonbill, with the neck stretched out; the wings did not appear so arched as those of the heron. I had been looking for it several days; but it appears I was always too late, as it crossed a narrow arm of the sea usually towards the middle of the day, or after having been disturbed. It frequented an isthmus of good pasture-land, called Hillswick Ness, on the west of the mainland, not very far from Ronas Hill. What its usual food was I do not know: the people about thought it grazed like a goose; but when first

seen, some six or eight weeks before I was there, it was at the carcass of a sheep, and it flew several times round the head of the boy who disturbed it, screaming and frightening him much. Curiously enough, when last seen, it was also "pecking the body of a dead sheep." This was on the 13th of October, moon full, as Mr. Gideon Anderson, the laird of Hillswick, has kindly informed me. A stay of so rare a visitor three or four months in the same neighbourhood is very interesting; if it were to return another year with a mate it would be still more so. Willughby's authority, and the old law against taking their eggs, are conclusive as to the fact of their formerly frequenting the Cambridgeshire fens and breeding in this country. Several years since one was shot in the island of South Ronaldsha, in the Orkneys, and one or two instances are recorded of its visiting Shetland. The people about had exaggerated stories of the great bird that had appeared at Hillswick. Many had seen it, yet from their descriptions I had some doubts whether it was a bustard or a crane: one man had been near enough to see the red about the head.—*John Wolley*; 3, *Roxburgh Terrace, Edinburgh, November, 1848.*

Note on the Heron (Ardea cinerea) as an article of Food.—In the accounts of feasts in the olden time, we often see mention made of the heron, as one of the delicacies set before the guests. Some four or five years ago I had the curiosity to taste one, which had been shot on Strensall Common, near this city. It was kept a reasonable time, and dressed in the most approved mode. It was not at all fishy, but was hard and dry, and of no very agreeable flavour. There was little encouragement to make a second attempt. In justice to the heron, I must, however, admit that this was an adult bird in full feather: possibly a more juvenile specimen might have proved more palatable. Even this one might, I should think, have passed muster if made into what is known to all sailors as a sea-pie, and which makes almost anything savoury and tasty.—*Beverley R. Morris, A.B., M.D.*; *York, November 22, 1848.*

Occurrence of the Summer Duck (Anas sponsa) near Deal.—On Monday, November 6th, a fine specimen of this bird was shot in the meadow at Walmer Castle: I am not aware that it has previously occurred in this neighbourhood. Another specimen was shot in a dyke at Marsh Side, Chislet, by a person of the name of Rogers, on the 8th of November. Both birds are males.—*J. W. Hulke*; 155, *Lower Street, Deal, Kent, November, 1848.*

Remarkable Colour of the Yelk in the Eggs of the Common Duck.—At a farm near Norwich I was shown some eggs of the common duck, the yelk of which was of a dark brown colour, not unlike melted glue: the eggs were laid that day and smelt quite fresh. They are perfectly good for hatching; but the young lay the same sort of eggs, and therefore, of course, the breed is not worth keeping. There are a great many ducks kept at the same place, but only a few lay these peculiar eggs.—*Peter E. Hansell*; *Thorpe, December 14, 1848.*

Occurrence of the Green Cormorant (Phalacrocorax graculus) and Hooded Crow (Corvus cornix) near Borobridge.—Last week, the keeper on the estate of Andrew Lawson, Esq., at Roelcliffe, near Borobridge shot an immature specimen of the green cormorant, and also a very good specimen of the hooded crow.—*James C. Garth*; *Knaresborough, October 27, 1848.*

Ornithological Observations in Norfolk for September and October, 1848.—In September: the Sandwich tern, at Lynn, about the end of the month: the red-necked phalarope, at Waxham, on the 26th and 30th; and the hobby, at Brixton, about the

same time. In October: the rough-legged buzzard, at Winterton,—a female on the 25th, and a male a few days later; several other examples have also occurred, and they all appear to be of the plumage of the second or third year, being older than the birds usually captured in other seasons: the gray shrike, at Yarmouth and other places: the tithys or black redstart (female), killed near the old battery at Yarmouth, on the 31st; this species has not been hitherto included in the Norfolk list: the adult gannet, at Cromer: Richardsou's skua (immature), at Lynn and Yarmouth, and the pomarine skua (immature), at the latter place: the storm petrel, at Lynn: a hybrid between the pheasant and black game was killed, early in the month, at Kew Hill, in the parish of Snettisham, in West Norfolk, and was supposed by the gamekeeper who killed it to have been bred from a pheasant and a gray hen.—*J. H. Gurney, W. R. Fisher; November, 1848.*

Ornithological Observations at Bishop's Auckland.—In 1844 I received a fine mature rough-legged falcon, shot near Sunderland; it had been seen and followed about a fortnight before it was captured: also, in November, the same year, an ash-coloured shrike or large butcher-bird was shot near this place; and a few days afterwards, another, also a male, was seen, but not captured: in the same month a female red-backed shrike was shot in a field near this place. In December, 1846, I received a fine male ash-coloured shrike, shot a little west of this place. On the 8th of April, 1848, a mature marsh-harrier, with us very rare, was shot at Whitworth: on September 4th, a fieldfare was shot on Sunderland Moor: September 15th, I received a very pale buff sparrow (*Fringilla domestica*), from Coundon, where there was a brood of five, four of which were of the same colour; the other one appeared to be buff, with two small patches of light brown on the breast.—*Joseph Duff; Bishop's Auckland, November 15, 1848.*

Provincial Names of Birds.—In pursuance of the example set by several of your correspondents, I forward a list of names applied in this neighbourhood to the commoner species of birds. The long-eared owl is known as the 'horned owl' or 'hoolet'; the white owl as the 'screech owl' or 'hoolet-a-hoo.' The rook is a 'crow,' or 'craw,' as it is pronounced; and the crow is the 'carrion crow.' The missel thrush is the 'misseltoe thrush' or 'storm cock.' The fieldfare is sometimes called the 'blue-tail' or 'blue-rump.' The redwing retains this appellation. The common linnet is the 'gray linnet' or 'goss linnet.' The lesser redpole is the 'chippet linnet.' The goldfinch is the 'red-cap.' The chaffinch is the 'spink.' The greenfinch is the 'green linnet.' The bunting is the 'ground lark.' The lark is the 'skylark.' The tree pipit is the 'tree-lark.' The meadow pipit is the 'tit-lark.' The redstart is the 'fanny red-tail.' The yellow bunting is a 'yold-ring.' The wagtails are called 'water wagtails.' The titmice are generally 'tom-tits'; the blue titmouse a 'blue-cap;' and the great titmouse an 'ox-eye.' The stonechat and whinchat are indiscriminately 'whinchats.' The wheatear is a 'white rump.' The hedge warbler is a 'billey' or 'billy hedge-sparrow.' The reed bunting is the 'reed-sparrow' or 'black-cap.' The summer warblers are generally 'peggies,'—as 'peggy whitethroat,' 'little peggy,' 'black-capped peggy,' &c. The common wren is a 'jenny wa-ren.' The willow wren is a 'ground feather-poke.' The long-tailed titmouse is a 'bottle-tit' or 'hedge feather-poke.' The ring dove is called 'stock dove.' The swift is a 'deviling,' or, as it is pronounced, 'dewlin.' The heron is a 'heron shaw' or 'herrin srew.' The plover is a 'teewit,' and the landrail a 'corn crake.' The hawks are indiscrimi-

nately 'kestrils' or 'hawks.' The goatsucker is a 'night-hawk.' The magpie is a 'maggy.' And I have heard some old people recite a doggerel rhyme referring to the bittern, which, though now never found here, used—in their youthful days—to be not uncommon in the vicinity of Doncaster:—

"There 'll either be rain or else summat waur,

When 'butter-bumps' sing upo' potterie car."

—*J. Hawley; Hull Gate, Doncaster, Yorkshire, October 5, 1848.*

Note on the length of Song of some of the British Song Birds, as remarked in the year 1848.—

	Opens.	Song ends.	Reassumes.
Robin (<i>Erythaca rubecula</i>)	Jany. 22	June 27	Septr. 8
Common Wren (<i>Troglodytes vulgaris</i>)	" 22	July 14	" 8
Skylark (<i>Alauda arvensis</i>)	" 25	" 19	" 13
Song Thrush (<i>Turdus musicus</i>)	" 26	" 29	Octr. 6
Missel Thrush (<i>T. viscivorus</i>)	" 27	May 27	
Chaffinch (<i>Fringilla cælebs</i>)	" 29	June 27	Septr. 10
Hedge aceentor (<i>Accentor modularis</i>)...	Feb'y. 23	May 30	
Blackbird (<i>Turdus merula</i>)	March 7	July 29	
Yellow Hammer (<i>Emberiza flava</i>)	" 20	Augt. 6	
Chiff-chaff (<i>Sylvia hippolais</i>)	April 9	" 13	
Linnet (<i>Linota cannabina</i>)	" 11	June 14	
Wryneck (<i>Yunx torquilla</i>)	" 21	May 30	
Nightingale (<i>Philomela lusciniæ</i>)	" 23	June 27	
Cuckoo (<i>Cuculus canorus</i>)	" 25	" 21	
Willow Wren (<i>Sylvia trochilus</i>)	" 25	Augt. 6	
Tree Pipit (<i>Anthus arboreus</i>)	" 25	July 13	
Blackcap (<i>Curruca atricapilla</i>)	May 2	" 13	
Garden Warbler (<i>C. hortensis</i>)	" 4	" 3	
Wood Wren (<i>Sylvia sylvicola</i>)	" 6	Augt. 27	

F. A. Chennell; Esher, Surrey, November, 1848.

On the Viper swallowing its Young.—Mr. Percival's interesting note (Zool. 2305) on this subject reminds me of a very similar anecdote, told to me several years ago by a gentleman who is an accurate observer, and who has had long experience in all kinds of field sports. He one day shot a viper, and almost immediately afterwards it was surrounded by young ones, in what appeared to him the most mysterious manner. But here the grand link was wanting, which Mr. Percival has supplied,—the young ones were not seen to come out of their mother's mouth. I may be allowed to mention an anecdote, told to me in 1842, by an illiterate shepherd of Hougham, near Dover: he met me catching vipers, and, on my entering into conversation with him, he volunteered—without any allusion of mine—to tell this curious story. One day his father came suddenly upon a viper surrounded by her young; she opened her mouth and they all ran down her throat: he killed her, and, leaving her on the ground, propped her mouth open between two pieces of stick; presently the young ones

crawled out : on the slightest alarm they retreated back again,—and this they did repeatedly for several days, during which time many people came to see it. The young which White of Selborne cut out of the old female, and which immediately threw themselves into attitudes of defiance, had probably not then seen the daylight for the first time. Mr. Bell, in a note in Bennett's edition of White's Selborne, mentions the wide-spread belief in this alleged habit of the viper ; but appears to consider the fact not proved. Accounts of similar habits in foreign viviparous snakes, common report, and, above all, Mr. Percival's observation, leave no doubt on my mind about the matter.—*John Wolley ; 3, Roxburgh Terrace, Edinburgh.*

Enormous undescribed Animal, apparently allied to the Enaliosauri, seen in the Gulf of California.—Captain the Hon. George Hope states, that when in H.M.S. Fly, in the gulf of California, the sea being perfectly calm and transparent, he saw at the bottom a large marine animal, with the head and general figure of the alligator, except that the neck was much longer, and that instead of legs the creature had four large flappers, somewhat like those of turtles, the anterior pair being larger than the posterior : the creature was distinctly visible, and all its movements could be observed with ease : it appeared to be pursuing its prey at the bottom of the sea : its movements were somewhat serpentine, and an appearance of annulations or ring-like divisions of the body was distinctly perceptible. Captain Hope made this relation in company, and as a matter of conversation : when I heard it from the gentleman to whom it was narrated, I inquired whether Captain Hope was acquainted with those remarkable fossil animals, Ichthyosauri and Plesiosauri, the supposed forms of which so nearly correspond with what he describes as having seen alive, and I cannot find that he had heard of them ; the alligator being the only animal he mentioned as bearing a partial similarity to the creature in question.—*Edward Newman.*

Occurrence of the Blind Worm (Anguis fragilis) in December.—A young specimen of the blind worm or slow worm, of the length of 3 inches, was brought alive to me for the Worcestershire Museum, on Saturday, the 9th instant, on which day it was picked up in the road near the foot of Houlton Hill, by J. H. Woakes, Esq., who presented it. It is stated in Bell's 'British Reptiles' that it retires in the autumn under masses of decayed wood or leaves, or into soft dry soil, where it is covered with heath or brushwood, and penetrates to a considerable depth, in such situations, by means of its smooth rounded muzzle and even polished body. The mildness of the season may probably be the cause of this deviation from its wonted course of hybernation.—*George Reece ; Worcester, December 16, 1848.*

Remarkable Instance of Instinct in a Pike.—At a late meeting of the Liverpool Literary and Philosophical Institution the following curious facts were narrated by Dr. Warwick, one of the members, with respect to instinct in animals. He stated that when he resided at Dunham, the seat of the Earl of Stamford and Warrington, he was walking one evening in the park, and came to a pond where fish, intended for the table, were kept. He took notice of a fine pike, about six pounds weight, which, when it observed him, darted hastily away. In so doing, it struck its head against a tenter-hook in a post (of which there were several in the pond, placed to prevent

poaching), and, as it afterwards appeared, fractured its skull, and turned the optic nerve on one side. The agony evinced by the animal was most horrible. It rushed to the bottom, and, boring its head into the mud, whirled itself round with such velocity, that it was almost lost to the sight for a short interval. It then plunged about the pond, and at length threw itself completely out of the water on to the bank. He (the Doctor) went and examined it, and found that a very small portion of the brain was protruding from the fracture of the skull. He carefully replaced this, and, with a small silver tooth-pick, raised the indented portion of the skull. The fish remained still for a short time, and he then put it again into the pond. It appeared at first a good deal relieved, but in a few minutes it again darted and plunged about, until it threw itself out of the water a second time. A second time Dr. Warwick did what he could to relieve it, and again put it into the water. It continued for several times to throw itself out of the water, and, with the assistance of the keeper, the Doctor made a kind of pillow for the fish, which was then left in the pond to its fate. Upon making his appearance at the pond the following morning, the pike came towards him to the edge of the water, and actually laid its head upon his foot. The Doctor thought this most extraordinary; but he examined the fish's skull, and found it was going on all right. He then walked backwards and forwards along the edge of the pond for some time, and the fish continued to swim up and down, turning whenever he turned; but being blind on the wounded side of its skull, it always appeared agitated when it had that side towards the bank, as it could not then see its benefactor. On the next day he took some young friends down to see the fish, which came to him as usual; and, at length, he actually taught the pike to come to him at his whistle and feed out of his hands. With other persons it continued as shy as fish usually are. He (Dr. Warwick) thought this a most remarkable instance of gratitude in a fish for a benefit received, and, as it always came at his whistle, it proved also what he had previously, with other naturalists, disbelieved,—that fishes are sensible to sound.—‘*Dumfries Chronicle.*’

Enormous undescribed Fish, apparently allied to the Raiidæ, killed off California.
—The following extract from a letter addressed to the Admiralty by Commander (now Captain) Cospatrick Baillie Hamilton has been obligingly placed in my hands, for publication in the ‘*Zoologist*,’ by the writer’s brother, Captain Hamilton, Secretary to the Admiralty. The document is dated H.M.S. Frolic, at sea off the west coast of Mexico, December 17, 1846. “In the gulf of California we fell in with some flat fishes of enormous size: at first we were unsuccessful in our attempts to capture them. I therefore made careful preparations, in the event of falling in with them again,—having harpoons constructed of a very large size, and attaching to them a coil of 1½ inch rope, by way of line. These precautions proved in the end successful, for we subsequently killed two of these monstrous animals. The larger afforded great sport to the ship’s company, as well as to myself and the boat’s crew. We were in a small, light, four-oared boat, built by Waterman, of Plymouth, and a more beautiful little sea-boat I have never seen. Immediately I had struck the fish with the harpoon it made off, apparently in a great rage, in a direct line for the ship: two harpoons were well fixed in the creature, and he very soon got out all our line, and then our light little boat seemed absolutely to fly over the water, our weight being scarcely perceptible to so powerful a creature. I never before experienced such rapid motion; the sensation was most exciting and delightful. The fish was still taking the exact direction of the ship; and it seemed as though the boat must pass under her

bottom, unless I cut the harpoon lines, and I was reluctant—in the excitement of the chase—to do this and give up my prize; so, as the four men, as well as myself, could swim, I merely warned them to jump overboard in case of need; but this was not necessary, as I managed to steer clear of the ship, passing her at a rapid rate, to the amusement of all on board. After this the creature made such sudden turns that it was no easy task to steer the boat. We made no attempt to lift the fish, and I had no opportunity of measuring him, but I imagine him to have been about 23 feet in width across the back. The smaller fish of the same species we hoisted on board. I could not ascertain its weight; but of this some idea may be formed by the fact that sixty men were unable to lift him on board with the yard tackles: the heaviest purchases in the ship, with one hundred and fifty men, were required for this purpose. The following measurements were taken:—

	ft.	in.
Width across the back.....	19	0
Width of mouth, which was furnished with two rows of formidable teeth	3	5
Thickness of the flesh	3	6

There was a sort of arm projecting from the shoulder, as represented in the sketch, which gives a general idea of the creature's figure. These fish usually remain at the bottom of the sea; but on a calm day, when the heat of the sun is great, they occasionally bask on the surface, in which position they were when I struck them." Capt. C. B. Hamilton considers his sketch too imperfect for publication. I hope, however, to give further particulars before long, and in the meantime beg to propose the provisional name of *Brachioptilon Hamiltoni* to this enormous inhabitant of the deep.—*Edward Newman.*

Inquiries respecting the Bones of a large Marine Animal cast ashore on the Island of Stronsa in 1808.—In the 'Memoirs of the Wernerian Natural History Society' (vol. i. p. 418) is a paper by Dr. Barclay, on a large animal cast ashore on the island of Stronsa. In illustration of his paper, the Doctor figures the head with a vertebra attached, four other vertebræ and a sternum with a paddle "and two parts corresponding to scapulæ" attached. He speaks of the originals of these figures as specimens then before the audience he was addressing. He gives seven inches as the diameter of the head, and two inches as the diameter of the cervical vertebræ then still attached to the head. The total length of the animal is given as fifty-five feet, and this from actual admeasurement. It is now positively asserted that the animal in question was a shark; but the utter impossibility of a shark fifty-five feet in length having a head only seven inches in diameter, and cervical vertebræ only two inches in diameter, is so manifest that further inquiry seems desirable; and I shall esteem it a great kindness if any naturalist who may possess the means of doing so will reply to the following questions:—

1. How were the bones described by Dr. Barclay obtained?
2. What is the evidence that they belonged to one animal?
3. Where are these bones preserved?
4. What is their present state?
5. Has the skull ever been denuded of skin, muscle, &c.?
6. Has it ever been examined by a competent comparative anatomist? and if so what opinion has he pronounced on it?

Surely there are naturalists in Edinburgh who can answer the questions at once.

It seems very irrational to speculate on the genus, order or class, to which a recent animal belongs, while the head and sternum of the creature are still in existence.—
Edward Newman.

The Great Sea-Serpent.—The following communication from our highly-respected fellow-townsmen, the Hon. T. H. Perkins, will be read with interest, especially as the sea-serpent has been recently seen, as related in the English paper to which Col. Perkins refers in his note.

“Boston, November, 1848.

“In the paper called the ‘Illustrated London News,’ of 28th October, is an account given by Capt. M’Quhæ, of H.B.M. ship *Dædalus*, of a sea-serpent, seen from his ship in August last, on her passage from the East Indies, and between the Cape of Good Hope and St. Helena. The perusal of several articles on the subject leads me to send you a letter written by me on my passage from England to the United States, in August, 1826, to Jno. P. Cushing, my friend and then partner, residing at Canton, in China. I also send you a memorandum from Commander Bolton, of the U. S. Navy, giving the report of the gentlemen of the Navy who were on board a tender called the *Lynn*, and who had a very favorable opportunity of satisfying themselves of the existence of the animal which had caused so much excitement. The serpent was seen in 1817, ’19 and ’20, from the *shore*, and the reports show the bunches to be produced by the vertical motion of the body when in action. From the drawings which accompany the letter of Capt. M’Quhæ, there are none of the protuberances, and which would lead to the opinion that the animal seen on the other side of the Equator differs in genus from that which has been seen on our coast. The drawings of the sea-serpent seen on the coast of Norway, given in the report of the Bishop Pontoppidan, are identical with the appearance of the animal which has been so often spoken of as visiting our northern seas. T. H. PERKINS.

“On board the ship *Ann Maria*, at sea, lat. 46, long. 44. Oct. 13, 1820.

“My dear sir,—When on shore I have little time to spare from business to devote to details which I am now to communicate.

“During the past three years you will have seen accounts in the newspapers, or reports will have met you in another form of an immense sea-serpent having infested our shores in Boston Bay. The first appearance he made was in the summer of 1817, in the harbour of Cape Ann. Wishing to satisfy myself on a subject on which there existed a great difference of opinion, I myself visited Gloucester with Mr. Lee. On our way down we met several persons returning who had visited the place where he was said to have exhibited himself, and who reported to us that he had not been seen for two or three days past. We however continued our route to Gloucester, though with fears that we should not be gratified with the sight of the monster which we sought. I satisfied myself, from conversation with several persons who had seen him, that the report in circulation was not a fable. All the town were, as you may suppose, on the alert; and almost every individual, both great and small, had been gratified, at a greater or less distance, with a sight of him. The weather was fine, the sea perfectly smooth, and Mr. Lee and myself were seated on a point of land which projects

into the harbour, and about 20 feet above the level of the water, from which we were distant about 50 or 60 feet.

"Whilst thus seated, I observed an agitation in the water at the entrance of the harbour, like that which follows a small vessel going five or six miles an hour through the water. As we knew there was no shoal where the water was thus broken, I immediately said to Mr. Lee that I had no doubt that what I had seen was the sea-serpent in pursuit of fish. Mr. Lee was not directing his attention to the spot which I speak of, and had not seen the foam of the water, the animal having immediately disappeared.

"In a few moments after my exclamation, I saw on the opposite side of the harbour, at about two miles distance from where I had first seen, or thought I saw, the snake, the same object moving with a rapid motion up the harbour, on the western shore. As he approached us, it was easy to see that his motion was not that of the common snake, either on the land or in the water, but evidently the vertical movement of the caterpillar. As nearly as I could judge, there was visible at a time about 40 feet of his body. It was not, to be sure, a continuity of body, as the form from head to tail (except as the apparent bunches appeared as he moved through the water) was seen only at three or four feet asunder. It was very evident, however, that his length must be much greater than what appeared, as, in his movement, he left a considerable wake in his rear. I had a fine glass, and was within from one-third to half a mile of him. The head was flat in the water, and the animal was, as far as I could distinguish, of a chocolate colour. I was struck with an appearance in the front part of the head like a single horn, about nine inches to a foot in length, and of the form of a marline-spike. There were a great many people collected by this time, many of whom had before seen the same object and the same appearance. From the time I first saw him until he passed by the place where I stood and soon after disappeared, was not more than fifteen or twenty minutes.

"I left the place fully satisfied that the reports in circulation, although differing in details, were essentially correct. I returned to Boston, and, having made my report, I found Mrs. Perkins and my daughters disposed to make a visit to Gloucester with me when the return of the animal should be again announced. A few days after my return I went again to Cape Ann with the ladies: we had a pleasant ride, but returned ungratified in the object which carried us there.

"Whilst at Cape Ann I talked with many persons who had seen the serpent, and among others with a person of the name of Mansfield, one of the most respectable inhabitants of the town. His account to me was, that a few days before, as he was taking a ride with his wife in a chair, the road taking them close to a bank which overlooks the harbour (and is nearly a perpendicular precipice), he saw an uncommon appearance, which induced him to descend from the carriage, when he saw the sea-serpent, in which until then he had been an unbeliever. The animal was stretched out, partly over the white sandy beach, which had four or five feet of water upon it, and lay partly over the channel. He desired his wife to get out of the chair, which she did. He said he had made up his mind as to the length of the snake, but wished the opinion of his wife on the same subject. He asked her what she should consider his length; she answered that she could not undertake to say how many feet in length he was, but that she thought him as long as the wharf behind their house, an object with which she had always been familiar. Mr. Mansfield said he was of the same

opinion. The wharf is 100 feet in length. It is to be observed that the person above spoken of had been such an unbeliever in the existence of this monster, that he had not given himself the trouble to go from his house to the harbour where the report was first made of such an animal being there. Subsequent to the period of which I have been speaking, the snake was seen by several of the crew of our coasting vessels, and in some instances within a few yards. Captain Tappan, a person well known to me, saw him with his head above water two or three feet, at times moving with great rapidity and at others slowly. He also saw what explained the appearance which I have described of a horn on the front of the head. This was doubtless what was observed by Capt. Tappan to be the tongue, thrown in an upright position from the mouth, and having the appearance which I have given to it.

"One of the revenue cutters, whilst in the neighbourhood of Cape Ann, had an excellent view of him at a few yards distance: he moved slowly, and upon the approach of the vessel, sank and was seen no more.

"Besides the instances I have mentioned, there were many others reported of his having been seen the same year. In that year, 1818, although there were several reports of his having been seen, yet they were not well authenticated, nor do I place any confidence in them.

"In the month of August, in the last year, he again made his appearance in our vicinity, and under very satisfactory circumstances. The weather being hot, many of our citizens resorted to Nahant to pass a few weeks. Of the number were Mr. and Mrs. Cabot and their children. Mr. Cabot had a view of him for more than half an hour at one time. He was in a chair, and had reached what is termed the long beach, when he saw several persons collected half a mile from him, which called his attention to the object which occupied them. Mr. C. had heard me often describe the view I had had of the serpent in 1817, and recognized in what was visible just without the breakers, and within a quarter of a mile, the monster which was supposed by many to exist nowhere but in the imaginations of those who had reported to have seen him. Mr. Cabot immediately rode back to Nahant, took Mrs. Cabot into his chair and returned to the beach; but the animal was no longer visible. By this time the inhabitants of Lynn had assembled to the number of some hundreds, on and near the beach, and all the visitors of Nahant were upon the alert. Having given over the hope of seeing him, Mr. Cabot was returning to leave his wife at her lodgings, when, to their mutual delight, he came in view just without the surf of the little beach, and within a quarter of a mile or less of where they stood.

"Marshal Prince, James Magee, and many persons of my acquaintance, had a fine sight of him, and all agreed in their account of him in the principal particulars. They all agreed as to the rapidity of his movements, being very much beyond anything living they had ever seen. The apparent bunches on his back they consider as arising from the construction of his body, and that the movement was vertical and not horizontal. At one time his head was about two or three feet above water, but soon depressed to the level of the sea. When not seeming to be in pursuit of his prey, his motion was not rapid. They saw him turn and bring his body into a letter S, the head being at right angles with the tail. From fifteen to twenty-three bunches, or *apparent bunches*, were counted by the different persons who saw him, and his size round they thought to be that of a common firkin or half barrel.

"No one thought they saw the whole of the body at a time, the tail seeming

always to be considerably under water. The greatest length given to him was one hundred feet, and no one who had a good sight of him thought him less than eighty feet in length. If the number of protuberances is twenty-three (and it seems there are at least that number), and calculating them to be distant from centre to centre four feet (and I think, considering their thickness, they cannot be less than this), he would be ninety-two feet long. They all agreed, too, as to the colour being quite dark, approaching to black. From all these circumstances, thus testified by honourable men, one would have supposed that the existence of a sea-serpent in our waters would have met the belief of every one. So far, however, was this from being the case, that the whole was ridiculed in the Southern States from New York southward as a *Yankee trick*.

"As it happened, a circumstance took place which did not do much credit to the actors in it, but which served to fortify the unbelief of our southern brethren. Believing that the possession of the sea-serpent would be a fortune to those who should have him in their power, many boats were fitted out from Cape Ann and other places in the neighbourhood of his haunts, armed with harpoons and other implements, and manned with persons used to the whale fishery, in hopes of getting near enough to him to fasten their harpoons in his side. Among others a Captain Rich (not Benjamin Rich), of Boston, took command of a party, which was fitted out at some expense, and went into the bay, where they cruised along shore two or three days without seeing the serpent. With a view, however, to keep the joke from themselves, they determined to throw or attempt to throw it upon others, though at the *expense of truth*! They spread a report that they had caught the serpent, or what had been taken for one, and that he was to be seen at a place mentioned in the advertisement.

"Thousands were flocking to see this wonder, when it was found to be no other than a large horse mackerel, which (though a great natural curiosity, weighing sometimes 600 or 700 pounds) very much disappointed those who had been induced to visit it. Those who had declared their disbelief of the existence of the sea-serpent amongst ourselves were delighted to find their opinions were confirmed, and gave themselves great credit for their judgment and discrimination. The report spread from Boston to New Orleans, that what had been thought by some persons to be a sea-serpent had proved to be a horse mackerel; and even those who had been believers now supposed that those who had reported that they had seen the serpent had either misrepresented or had been themselves deceived. As no report of the snake having been seen after the capture of the mackerel was made, during that year, Captain Rich had the laugh with him, until circumstances, which have transpired since, have borne rather against him. Thus much for the transactions of the past years."

In addition to this interesting narrative, our venerable correspondent gives letters from several members of his family, who the next summer had opportunity to see the sea-serpent, in which the appearance of the animal is minutely described. He was several times seen in the month of August, 1820, from the piazza of the house of Col. Perkins, at Nahant. This correspondence is very interesting; the description of the animal agrees entirely with that given above, and we regret that want of space must prevent the insertion of it. We close this article by a memorandum addressed to Col. Perkins by Capt. Bolton, of the U. S. Navy, referring to the same subject.

"In the year 1817 I was the first lieutenant of the Independence, of 74 guns, then lying in the harbour of Boston.

"In the course of the spring or summer a party of officers were detailed, by order of Commodore Bainbridge, to survey the coast of the bay, to a limited extent, north-eastward and outside of the light-house.

"The officers selected for this duty were the sailing-master of the ship, Wm. T. Malbone, and the Rev. Cheever Felch, the instructor of the midshipmen.

"To assist in the service several of the most competent and elder midshipmen were designated. As they alternated periodically with other gentlemen of the same grade, I cannot with any degree of precision venture to name them. I hope that some of them are yet living, and, further, that they have advanced in professional distinction. There were also added a sufficient number of seamen and boys.

"Commodore Bainbridge, Mr. Malbone and Mr. Felch died some years ago.

"I recollect that on the first occasion when the *Lynx* returned to the Independence, of which ship she was the tender, that Mr. Malbone reported as having seen a monstrous sea-animal, not before known to him, of the snake species; the length doubtful, but estimated at some eighty or more feet; and added as an incident, that the officers and men employed in a small boat to carry out the soundings had returned in haste, and indeed alarm, to the *Lynx*, which was at anchor.

"These statements were corroborated by Mr. Felch, the officers and crew.

"Subsequently it was seen several times, by some of the party, who, being soon satisfied that it was harmless, approached comparatively near, and no doubt gave me a minute description of its appearance as it presented itself to them; but if so, the particular details have escaped my memory.

"These facts are all that I can with distinctness and certainty mention. WM. COMPTON BOLTON, Captain in the Navy of the United States, Saratoga Springs, July 14, 1846; to Hon. T. H. PERKINS, Boston."—*'Boston Daily Advertiser,'* November 25, 1848.

Proceedings of the Entomological Society.

January 1.—W. SPENCE, Esq., President, in the chair.

A beautiful and extensive collection of Indian insects, presented to the Society by Mrs. R. Hamilton, was exhibited.

Certificates, as members, in favour of Dr. Lee, F.R.S., W. S. Dallas, Esq., W. J. Wild, Esq., H. F. Farr, Esq., and P. H. Vaughan, Esq.; and as subscribers in favour of W. Bell, Esq., W. P. Saunders, Esq., H. Jobson, Esq., and G. Bedell, Esq., were read. J. Dawson, Esq., of Carron, was elected a subscriber.

Mr. J. W. Douglas exhibited the cocoon and pupa of *Oxyptate gelatella*, found by Mr. May in Fulham Fields, under the bark of the whitethorn. Mr. May states that the larvæ are internal feeders, living chiefly in the decayed branches of whitethorn, and not unfrequently under the bark of living branches, where they form a beautifully woven cocoon. Mr. Stainton remarked that this account differed from that of Lienig in the '*Isis*,' and also from Freyer's account in his '*Beitrag*.' The larva is there stated to be pale greenish gray, with the head, the fore part of the thorax and the legs blackish, becoming, as it grows older, of a light grass-green, with long whitish stripes down the back. It is said to breed on whitethorn, currant, elm, barberry, &c., and to form a covering by drawing the leaves together, living therein in a net-like, silken canal, in which it undergoes its metamorphosis; the pupa being grass-green. This

difference in the habits makes it doubtful if our insect and Freyer's be really identical.

The President called the attention of the meeting to a letter from Dr. Davy, published in the 'Barbadoes Agricultural Reporter,' relative to an insect which attacks the tubers of the sweet potato. Specimens of the insect, which is of a genus near to *Cryptorhynchus*, were shown by the President, who also exhibited specimens of a *Calandra* near to *C. Oryzæ*, which destroys the grain of *Sorghum vulgare*.

Mr. S. Stevens exhibited a large series of insects, collected near Para by Messrs. Wallace and Bates.—*E. D.*

Occurrence of Melitæa Dia in Warwickshire.—A correspondent informs me that five specimens of *Melitæa Dia* have been sent to him as British, and as having been captured in Mr. Weaver's old station, in the vicinity of Birmingham: he further adds that they have all the appearance of British specimens. It will be a source of great gratification to me to find Mr. Weaver's statement on this subject corroborated, and I shall be anxious to publish every particular as soon as ascertained.—*Edward Newman.*

Note upon four European Species of the Genus Cucullia.—In 'Lepidoptera Britannica,' Mr. Haworth introduced as British the following species of *Cucullia*,—*tanacetii*, *W. V.*, *lucifuga*, *Esp.*, *lactucæ*, *Esp.*, and *umbratica*, *Linn.*,—copying the Fabrician or Linnean descriptions of each, and giving no information on his own authority about them: every succeeding writer upon British Lepidoptera has followed Haworth; and Mr. Westwood, the latest author who has noticed them, has added nothing new. Being unable to detect any difference in the specimens of the four supposed species contained in the cabinets of my friends Mr. Stephens and Mr. Bentley, I long ago suspected that they were all referrible to *Cucullia umbratica*; but not then possessing authentic continental specimens of the four species described by Fabricius, I could not speak with any certainty about them. Through the kindness of my friend M. A. Pierret I now possess fine bred specimens of each, and my supposition has proved correct. All the specimens preserved in British cabinets under the names of *lactucæ*, *tanacetii*, *lucifuga* and *umbratica*, belong to the latter species, as do figures 6, 8, 10 and 12 in plate 49 of Westwood and Humphrey's 'British Moths.' When my Catalogue was printed I did not possess an authentic specimen of *lactucæ*, and doubtingly gave it as a British insect: it must, however, be discarded for the present from the British list. I may just add that any entomologist having once seen genuine examples of the four species could never afterwards confound them: in fact, the veriest tyro in Entomology would at once see the distinguishing characters.—*Henry Doubleday; Epping, January 22, 1848.*

Larvæ on the Leaves and Catkins of Sallows, &c. (Zool. 2199).—These larvæ produced *Cosmia trapetznina*, *Cymatophora viminalis*, *Euthalia elutata*, *Peronea divisana*, *Lozotænia lævigana*, *L. xylostæana*, *L. roborana*, *L. acerana*, *Ditula semifasciana*, *Pseudotomia populana*, *Pæcilochroma piceana*, *Anacampsis populella*, *A. sororculella*, *Hub.* (*Ericæ*, *Westwood*). From beech leaves I reared *Lozotænia cinnamomeana*. From last year's stems of *Artemisia vulgaris*, inside which the larvæ feed, I reared *Spilonota fœnella*. From rose leaves I reared *Lozotænia oporana*, *Spilonota aquana*, *S. ———*, n. s. All the above appeared in June and July.—*J. W. Douglas; 19, Nelson, Square, Peckham, December 28, 1848.*

Capture of Lepidoptera in the Neighbourhood of Bristol in 1848.

- Astyages grandipennis*. May 20 to 25, flying over furze, Durdham Downs.
Eupithecia venosata. May 24, attracted by lights.
Acidalia subsericeata. May 25 to June 5, by beating, Durdham Downs.
Epione advenaria. May 29, by beating nuts, Portshead.
Hadena adusta. May 29, at sugar, Portshead.
Hadena Genistæ. May 25, at sugar, Durdham Downs.
Neuria Saponariæ. May 30, attracted by lights.
Leucania comma. Abundant, June 6, at sugar, Durdham Downs.
Apatela leporina. One, June 9, on a birch, Durdham Downs.
Xylophasia hepatica. Abundant, June 6 to 27, at sugar, Durdham Downs.
Xylophasia sublustris. Three, June 14, at sugar, Durdham Downs.
Agrotis corticea. Twenty, June 14 to July 3, at sugar and on lime blossoms.
Acronycta Ligustri. June 14, at sugar, Durdham Downs.
Porrectaria ornatipennella. June 19 to July 6, by sweeping, Durdham Downs.
Porrectaria ochrea. Thirty-five, July 17 to 29, by sweeping, Durdham Downs.
Chilo forficellus. June 24, lights.
Luperina furva. June 28 and July 17, at sugar and lime bloom.
Depressaria venosa. One, July 13, flying, Durdham Downs.
Cledeobia albistrigalis. Five, July 18, at sugar, Durdham Downs.
Bryophila glandifera. July 21 to August 14, on old walls.
Trichiura Cratægi. August 26, on a hedge.
Ennomos angularia. August 23 to September 2, at lights.
Heliothis peltigera. One, September 25, at ivy.
Xanthia aurago. Common, but nearly all worn; October 5 to 12, at ivy.
Xanthia citrago. Common, but nearly all worn; September 18 to October 12, at ivy.

Xylina petrificata and *oculata*. Very sparingly, October 5 to 14, at ivy.
Agrotis saucia. One, at ivy. — *P. H. Vaughan*; Redland, near Bristol, December 5, 1848.

Capture of Lepidoptera in Suffolk during the months of June and July, 1848.—
 The first order in which I have anything to mention is that of the

BOMBYCES.

- Callimorpha dominula*. Rather abundant, on the wing in the day-time.
Psilura monacha. One male, bred.
Cossus ligniperda. Two wasted specimens and a larva of this species were brought to me in July.

NOCTUÆ.

- Apatela leporina*. One, at sugar, early in July.
Ceropacha ocularis. Four wasted examples, at sugar, July 1 to 8.
Xylophasia sublustris. Sparingly, at sugar.
Rusina tenebrosa. Abundant, at sugar.
Agrotis valligera. One at the beginning, and two towards the end of July.
Hadena Atriplicis. Four, at sugar, June 22 and 23.
Dypterygia Pinastri. Three.
Heliothis dipsacea. Two, in a clover field, darting about in the hottest sunshine.
Hydrelia uncana. One, in a marshy field.

PYRALIDÆ.

Margaritia cinctalis. Several, in a clover field.

TORTRICIDÆ.

Pseudotomia trauniana. One, on the wing.

Anchylopera derasana. One.

Carpocapsa cæcimaculana, Dup. One, on the wing.

Ablabia quadripunctana. Several, among reeds.

YPONOMEUTIDÆ.

Anacampsis terrella. Abundant.

Anacampsis guttifera. One, on a Scotch fir.

Argyromiges nivella. One, on the wing.

Argyromiges spartifoliella. Common, among broom.

Argyromiges Clerckella. One.

TINEIDÆ.

Ilythia sociella. In houses.

Eudorea cratægella, Hub. One, in a crevice of the bark of an Acacia: Westwood makes this synonymous with *mercurella* of Linneus, but Zeller preserves them as distinct.

Crambus arbustorum. Four, among broom.

Crambus pinetellus. Several, at sugar.

Crambus cerusellus. The male of this species occurred in abundance, but I met with only one female.

ALUCITIDÆ.

Pterophorus rhododactylus. One.

The above, together with the large quantity of *Agrophila sulphuralis* before mentioned (Zool. 2199), are some of the best of my captures in the neighbourhood of Brandon: it is indeed a rich and favoured locality, and well worthy of further exploration.—*J. H. Dunning; Elmwood Lodge, Leeds.*

Record of the Rarer Lepidopterous Insects occurring in the Neighbourhood of Huddersfield in 1847-8.—

Papiliones. *Polyommatus Argiolus* may not unfrequently be seen during the month of May hovering over the tops of hollies, on the leaves of which it feeds in the larva state.

Sphinges. Several of this tribe have occurred in this neighbourhood. *Macroglossa stellatarum*, which—as its specific name implies—feeds, in the caterpillar state, on some of our stellate plants, particularly the genus *Galium*; *Chærocampa Celerio*, already recorded (Zool. 1653); *Sphinx Convolvuli* and *S. Ligustri*. A fine specimen of *Acherontia Atropos* was brought to me in June last, which had been taken while at rest on a corn-stack. *Ino Statice*—by no means so exclusive a feeder as its specific name would lead us to imagine—appears with us about the beginning of June, flying about the heads of the common clover (*Trifolium pratense*).

Bombyces. The moors in the neighbourhood furnish examples of *Saturnia Carpinii*. *Cynia mendica* is common about Huddersfield, frequenting marshy places during the month of May: the caterpillar of this singular species feeds on various aquatic plants. *Drepana falcula* (removed by Boisduval to its present station) was this year taken at rest on the bole of a beech.

Noctuæ. A few specimens of *Ceropacha flavicornis* were attracted to the sugar in

March of last year: it is a shy insect, its wings being in constant motion while it is feeding: two or three were again taken this year on the boles of trees. *Nonagria Typhae* and *N. extrema* occur with us in low marshy tracts overgrown with typhaceous and cyperaceous vegetation. *Hydræcia nictitans* is extremely abundant with us. A single example of *Luperina cespitis* was taken in August, 1847. Several specimens of *Xylophasia scolopacina*—a local species—were beaten from horse-chestnut trees during the same month of the same year. *Chersotis porphyrea* occurs in tolerable abundance on the moors, and *Noctua glareosa* is occasionally seen in our oak-woods. *Heliophobus popularis*, notwithstanding its fear of broad daylight, was taken on a blade of grass long before sunset, in August, 1847. Numbers of *Trachea piniperda* appeared at the close of March in a fir-planting consisting chiefly of *Pinus sylvestris*: when taken they had evidently but just emerged from the chrysalis. *Tæniocampa rubricosa*, *T. Populeti* and *T. gracilis* were last year attracted to the blossoms of the round-leaved willow (*Salix caprea*): no fewer than a dozen specimens of *T. Populeti* were shaken from a single *Salix*. *Orthosia congener* occurred in a small plantation of larches and Scotch firs, in August, 1847: several were attracted to the composition, but owing to their extreme aversion to the light being thrown suddenly upon them only very few were secured. *Dianthæcia Cucubali* and *D. capsicola* have occurred, though very sparingly: the former was taken on the flowers of the *Rhododendron (R. ponticum)*, the hypogynous disk of which is nectariferous, and thus accounts for the shrub proving such an attraction to the Noctuæ. *Hadena adusta* was very plentiful with us during June and the early part of July. *Aplecta occulta* I took in 1846: I have not heard of a specimen of this rare insect being since taken in the neighbourhood. *Aplecta herbida* has been tolerably abundant this season. *Crymodes templi* was attracted to the gas-lamps at Huddersfield some years ago; and late in the autumn of last year a specimen of this exceedingly scarce insect, scarcely recognizable, was picked up in the street. *Calocampa vetusta*, a feeder on the *Carices*, occurred here in 1846 and 1847: I have not seen it this year. Probably the best capture of last year is *Plusia interrogationis*, which was taken on the moors while flying in the midday heat of a July sun. Two pretty little day-flyers, *Anarta Myrtilli* and *Heliodes Heliaca*, have been netted here; the former somewhat abundantly, the latter only sparingly. I am glad to say that a wing of a *Brephos* was found this year, thus proving the existence of this beautiful insect in our own neighbourhood.

Geometræ. *Pericallia syringaria* has been taken on one or two occasions. *Macaria lituraria*, recorded by Boisduval as occurring in the pine-woods of France, is met with in the south-west of Yorkshire in similar localities. *Mæsia favillacearia*, taken, according to Westwood, originally in Yorkshire, is not uncommon on the moors. A perfect swarm of *Nyssia hispidaria* (both male and female) appeared in March last on the boles of oaks, in several of the woods in this neighbourhood, as many as a hundred being noticed in a single day. A wing of *Biston betularia*, found in May of the present year, proves its existence in these parts. Owing to a profusion of the *Hypericineæ* in this district we have *Anaitis plagiata* in abundance: the larva feeds, I believe, on the most common of the family—*Hypericum perforatum*. A few examples of *Melanippe hastaria* have been noticed during the past and present year, chiefly among young birches. Of the numerous genus *Emmelesia* three may be worthy of record as occurring in our northern latitude,—*Emmelesia sylvata*, *E. rivulata* and *E. heparata*.

Pyrælidæ. *Paracolax nemoralis* is abundant in these parts of our oak-woods, where the golden saxifrage (*Chrysosplenium oppositifolium*) flourishes. The moors offer

examples of a beautiful little gem, the *Ennychia octomaculana*, which rejoices in the hottest beams of the summer sun. *Margaritia sticticalis* occurs with us, though sparingly.

Tortricidæ. Of this tribe I may record *Tortrix Galiana*, plentiful on the moors; *Philedone Gerningiana*, beaten occasionally from oaks; *Spilonota aquana*, appearing in gardens in June and July; *Heusimene fimbriana*, of which a single specimen was taken on the wing, in the afternoon, in April last; *Anchylopera Lyellana* and *Teras emargana*.

Yponomeutidæ. *Anacampsis longicornis*—a northern insect—is common on the moors in May; *A. affinis* and *A. diffinis* in gardens in June. Individual specimens of *Argyromiges Clerckella*, *A. Sircomella* and *A. spinolella*, have been taken here,—the first and third among oaks, the second at rest on the bole of a beech.

Tineidæ. A single specimen of *Eudorea murana*—taken on stone walls in Scotland—has occurred here. *Lampronia concinella* was discovered, in June, on a nettle.

Alucitidæ. Of the Plumes we have taken, *Pterophorus leucodactylus* is most worthy of record.—*Peter Inchbald*; *Storthes Hall, Huddersfield, December, 1848*.

Capture of Lepidoptera at Exmouth.—*Colias Edusa* appeared this year in some plenty, but not nearly so abundantly as last year, and fully a month later. The first specimen taken this year was a pale variety of the female (*Helice, Haw.*), on August 27th, between which and October 20th about fifty specimens were taken, including another *Helice* which I took September 17th; last year about 150 specimens were taken here, including two specimens of *Helice*. Perhaps it may be worth noticing that the *proportion* of females to males this year was much larger than last year—that in the former case being nearly as two females to seven males, in the latter as one female to six males.

The captures at sugar were—with a very few exceptions—made in a small plantation under the cliff shore to the beach. They are as follows:—

Agrotis puta. Twenty-five, at sugar, from August 11 to September 7.

Cerigo cytherea. One, at sugar, August 16.

Cosmia affinis. Five, at sugar, August 11 to 18.

Lytæa umbrosa. Three, at sugar, August 16 to 19.

Agrotis tritici. Four, on ragwort flowers and long grass on Dawlish Warren, August 28 to September 18.

Agrotis cursoria. Four, on ragwort flowers and long grass on Dawlish Warren, August 28 to September 18.

Agrotis vallisgera. Seven, on ragwort flowers and long grass on Dawlish Warren, August 28 to September 18.

Agrotis lunigera. One, at sugar, August 29.

Catocala nupta. Three, at sugar, August 29 to September 5.

Graphiphora C-nigrum. Two, at sugar, August 28.

Caradrina hebraica. One, in long grass on Dawlish Warren, September 20.

Calocampa vetusta. Four, at sugar, September 25 to 28.

Agrotis pascuea. One, at sugar, about September 25: from not knowing the name at the time I had omitted to register this properly.

Xanthia citrargo. One, at sugar, October 4.

Xylina semibrunnea. One, at sugar, October 6.

Xylina rhizolitha. One, at sugar, October 6; one, at ivy, October 24.

Chlorissa viridaria. In some plenty, on heath, at the end of May.

Ptychopoda incanata. Abundant, on the cliffs, in August.

Heliophobus hispida. I took one specimen of this rare *Noctua* late in September, on the sand-hills, but have only just succeeded in getting it named, by the kindness of Messrs. Shepherd and E. Doubleday.

I have omitted from this list a number of the commoner species,—as *Agrotis suffusa*, *Xanthia ferruginea*, *Orthosia lota*, *pistacina*, &c.—*W. J. Bull*; *Exmouth, February 8, 1849*.

Occurrence of Colias Edusa near Exmouth.—In reply to Mr. Bromfield's inquiry (*Zool.* 2331) whether *Colias Edusa* has occurred this year, I may state that several specimens were taken during August, September and October last, under the hill at Exmouth, where it has been seen annually for some time past, occasionally in abundance: last year (1847) it occurred in plenty, both at Exmouth and in the country round. I took it as late as the first week in November, at Dawlish. The pale variety, *C. Helice*, was also taken in company with it.—*P. H. Vaughan*; *Redland, near Bristol, December 16, 1848*.

Occurrence of Vanessa Antiopa, Hipparchia Davus, Charadrina glareosa, &c., near Cromer.—On the 24th of August last I captured a fine pair (male and female) of *Charadrina glareosa*, at the Beeston Hill, near Cromer, in Norfolk, which had crawled out of the heath which covers the place. I also saw a fine specimen of *Hipparchia Davus* on the cliffs, which I was unable to capture, as it quickly disappeared over the edge. I was shown by a collector at the same place a singular variety of *Argynnis Adippe*, having the upper side of all four wings of a deep brown colour, without spots, but with a lighter margin, in which were three or four darker lunules, and which had been caught in the neighbourhood; and I heard from the same person that there had been another specimen of *Vanessa Antiopa* taken there this spring. My specimen, which was captured there last autumn, was the first known to have been taken in that locality.—*A. D. Michael*; *9, Red Lion Square, December 18, 1848*.

Examine the dry Burdock-heads (Arctium lappa).—In Mr. Stephens' cabinet are placed as specimens of *Cleodora silacella*, *lucidella*, *falciformis* and *ochroleucella*, several—at first sight—different looking insects: in my opinion they are all referrible to one variable species,—the true *Tinea lappella* of Linneus,—which is now in the larva state in the dry heads of the common burdock (*Arctium lappa*). Mr. Douglas, who has examined attentively Mr. Stephens' specimens, doubts the correctness of my bold assertion; and in order to settle the disputed point, as well as to enrich their collections with an insect most people want, I call upon every entomologist in the country to collect all the burdock heads they can get, and put them in their breeding-cages: the larvæ require no feeding or attention, and the moths will appear in June and July. Thistle-heads afford sustenance to other Micro-Lepidopterous larvæ, and the teasle-head is well known as the habitat of *Antithesia gentianæana* and *Cochylis roseana*.—*H. T. Stainton*; *Mountsfield, Lewisham, February, 1849*.

Information concerning new Continental Tineidæ.—I have been informed, by Herr P. C. Zeller, that there is a species of *Lithocolletis* extremely abundant near Paris which closely resembles *Messaniella*, but has a hook on the cilia: and the following new species have been discovered on the Continent in the group monographed by him in the third volume of the '*Linnæa Entomologica*,' viz., one allied to *scitella*, from *Hypericum*; two allied to *spartifoliella*, one of which frequents *Cytisus Laburnum*, and

the other poplar; one allied to *gnaphaliella*, on *Artemisia campestris*; and another allied to *Boyerella*, which flies amongst *Euonymus europæus*. (This last *may* be my *Demaryella*, which is certainly allied to *Boyerella*, but I am not aware that it frequents the spindle-tree). In *Argyresthia* two new species have been discovered; one allied to *dilectella*, and frequenting juniper; the other very much resembling *fagetella*, but larger: this I have no doubt is our *semitestacella*, consequently the *spiniella* of Zeller—which I have given as a synonyme for *semitestacella* (Zool. App. vi.)—is probably a species unknown to us. I thought the above information might give a useful hint to some of your readers to examine, during the ensuing season, the plants above mentioned, and thus lead to the discovery of these novelties.—*Id.*

Observations on a mixed Colony of Halictus abdominalis (female, Melitta fulvocincta, Kirby), H. morio, Andrena nigro-ænea and Sphecodes subquadratus. By FREDK. SMITH, Esq., Curator to the Entomological Society.

ABOUT the middle of the month of April I met with a colony of *Halictus abdominalis*, at a short distance from my residence at Newington; and this afforded me an excellent opportunity of observing the habits of the species. The situation which the colony occupied was a bare patch in a sloping sand-bank, about three yards in length by one broad. In mixed community with *Halictus* was a colony of *Andrena nigro-ænea*, another of *Halictus morio*, and also one of *Sphecodes subquadratus*. The latter genus being generally considered to be parasitic upon *Halictus*, I was extremely anxious, if possible, to satisfy myself whether this supposition is correct or not, since I am not aware that any one has satisfactorily proved such to be the fact. I have, in former observations upon *Sphecodes*, expressed an opinion against their parasitism, founded upon observations of my own; and one of the most eminent Hymenopterists of the present day thus expresses himself: "The insects upon which these are parasitical, the most careful research has not yet discovered."

In my observations upon the colony, it may be readily supposed that I lost no opportunity of carefully observing the operations of these bees; yet, notwithstanding the most careful watching, I could not detect, in a single instance, the supposed parasite entering the burrows of *Halictus*: the burrows which *Sphecodes* entered were of a size intermediate between those of *H. abdominalis* and those of *H. morio*; in fact, the head of the insect exactly fitted the mouth of the burrow,—and I do not think the *Halictus* could possibly have entered them. I repeated my observations on several occasions, on days when all the species were numerous, but with exactly the same results.

It occurred to me, one cloudy morning, that it would be an excellent opportunity for digging out the bees: this I did with the greatest care, and in every instance, in the burrows of *Halictus*, I found that bee the sole occupant. In the burrows into which I had observed *Sphecodes* enter on previous occasions, I found in each a single female, but no *Halictus*. The burrows of both insects were about six inches deep: at the extremity of those of *Halictus* were four or five cells divergent from the per-

pendicular burrow, having short passages leading to them from the common one; each contained a ball of pollen and honey about the size of a pea, on some of which a small larva was feeding. I endeavoured to trace the burrows into which I had observed *Sphecodes* enter; but I did not succeed in satisfactorily ascertaining whether some small cells, which in one instance I met with, were those to which the burrow led, as I had previously lost the track of it: it is possible that these cells were those of *H. morio*,—and as the food which they contained exactly resembled that found in the cells of *H. abdominalis*, I am inclined to believe that to have been the case. The food stored up by those bees which are not furnished with polleniferous organs consists of semi-fluid honey, as that of *Ceratina* and *Hylæus*. After the most careful observation of the colony, I am still inclined to believe that *Sphecodes* is not a parasite.

The Baron Walckenaer, in his history of *H. terebrator*, which is synonymous with our insect, says, that it is principally during the night that these bees construct their burrows; but although I visited the colony on such nights as he describes as being favourable for their operations, I never saw any bee thus employed: the nights in this country are probably never sufficiently warm to favour the interesting operations described by Walckenaer. These bees may be seen labouring most assiduously early in the morning, and also on dull warm days, but not in the great heat of mid-day. Walckenaer says, that during the day either the male or female remains on guard at the entrance of the burrow, retreating to the bottom on the return of either from their excursions: I spared no pains in watching for an opportunity of witnessing so curious and interesting an instance of insect economy, but I must admit that in this account I think the Baron has fallen into an error: the female (and sometimes the male) will retreat to the burrow on the sun being obscured by a cloud, or after having returned from one of her excursions, and, having deposited the fruits of her industry, she will on such occasions station herself for some time with her head at the mouth of her burrow, as if to rest herself after her labour. The precaution described by Walckenaer, he attributes to the instinct of the bee to prevent the intrusion of enemies; but amongst the innumerable occasions on which I have observed parasites entering the nests of other bees, not a single instance ever occurred in which the slightest opposition was shown; in fact, there does not appear to be the slightest animosity existing between them; on the contrary, a bee, on arriving with her load of provisions, should a parasitic bee be found in the burrow, will patiently retreat, and fly off to a short distance until the parasite reissues from her nest.

At the time when I first observed the colony (about the 15th of April) and met with *Sphecodes subquadratus*, I was anxious to secure a supply of specimens, having previously only taken four or five during several years' assiduous collecting: in this I succeeded, but by the end of May or the beginning of June not a bee of any of the species was to be met with, and all traces of their burrows became obliterated. About the middle of July I again visited the spot: a few of the burrows were again turned up, the little hillocks of sand surrounding the entrances as before: I found a few males of *Halictus* and also of *Sphecodes*, including the males of the *Halictus morio*: at this time I did not observe a female of any but the latter species, but a week later I found all of them in plenty,—*Andrena nigro-ænea* having disappeared altogether until next spring.

I have now arrived at a point in the economy of *Halicti* which I do not know to

have been previously observed ; or if so, I am not aware of the fact having been published. These bees, it will be seen, are double-brooded,—a fact which I think is peculiar to *Halictus* and *Sphecodes*. Truly “ we are as yet scarcely upon the threshold of the great temple.” The experience of every ensuing season proves to me the truth of this observation : compared with our knowledge of individual species, how limited our knowledge of their economy in all its ramifications ! Even the history of those which are daily before us, how incomplete !

It will thus be seen that, independent of structural differences, these bees are distinctly separated from the rest of the *Andrenidæ*. The males of those bees forming the genus *Andrena* disappear some time before their partners have completed their labours,—the reverse of which obtains in the *Halicti*. On the 9th of October I met with males of *H. abdominalis*, as well as of *H. morio* ; but not a female could I find, although a month earlier they were plentiful upon the flowers on the same bank, at which time the males also were in great profusion.

Great numbers of the male *Halicti* I observed were preyed upon by the earwig (*Forficula*) : I found remains of their bodies and wings, at the roots of a species of *Leontodon*, in quantities : I therefore conjecture, that during the night, when numbers of these bees are enclosed by the petals of flowers, the earwig ascends the plant and devours them. *Forficula* I have observed to be a most destructive insect to bees, both in the early and perfect stages of their existence,—whole colonies of *Osmia bicornis*, *Colletes* and *Anthophora* being sometimes almost annihilated by them : it is a matter of no consequence to them in what stage of progress the bees may chance to be ; they devour pollen, pupa or imago, indifferently. *Osmia* and *Anthophora*, I have also this year discovered, are subject to the attacks of small Chalciditous insects : as many as thirteen larvæ were in one cell of *Osmia*, and about the same number in that of *Anthophora*. Both these parasites belong to the genus *Monodontomerus*, each being a distinct species : that found in the cells of *Anthophora* is about to be described by Mr. Newport, he having bred it about the same time as myself,—the species not being previously known.

It will perhaps be said, that the fact of *Sphecodes*, as well as *Halictus*, being double-brooded, is in favour of the opinion of the former being parasitic : such I freely admit to be the case, and also that my observations are not conclusive. The individuals of the genus *Nomada* which are parasitic may be seen entering the burrows of *Andrenidæ* constantly and frequently : one species I have bred from the cocoons of *Eucera* : here there is no difficulty, but having so repeatedly met with *Sphecodes* in community with *Halictus*, and also with *Andrena*, and having so carefully watched their operations, I cannot but think I must have observed them entering the burrows of one of the genera ; but by the most careful observation I could never detect them so doing. I would also observe, that the fact of my observing *Sphecodes gibbus* in community with *Andrena argentipes* speaks in favour of their non-parasitism ; for it must be obvious, that the eggs for the autumnal brood must be deposited in the nidus of an *Halictus* or of an autumnal species of *Andrena* ; and I must admit that I cannot reconcile to my mind the idea of a parasitic bee being parasitic upon two distinct species, or first upon an individual of the genus *Halictus*, and then upon one of that of *Andrena* ; still such an occurrence is possible, and it would be exceedingly interesting to determine the question.

A record of all observations made upon these genera will probably some day settle

this doubtful question ; and conceiving this to be most desirable, I have been induced to record the result of my at present imperfect investigation.

FREDERICK SMITH.

5, High Street, Newington,
December 5, 1848.

Capture of Hymenoptera in Devonshire.—In my early collecting days Devonshire was the county, *par excellence*, which teemed with entomological treasures ; and in the order Hymenoptera I have still a pleasing belief in the early visions of my imagination. As far as the order Coleoptera is concerned, I must admit that I am considerably shaken in my early faith, two of our best collectors having diligently searched in vain for the promised treasures in this order within the last year or two ; and when I state that Mr. S. Stevens has spent two months during the past summer without success, I am constrained to abandon my preconceived notions of its coleopterous riches. The following list of hymenopterous insects, captured by Mr. S. Stevens (which of course were only casually taken, not diligently searched for, since that gentleman is not a collector of the order, and they are only the result of just what fell in his way, and which he kindly presented to me), shows, I think, that Devonshire is most probably extremely rich in Hymenoptera, since two species are enumerated as new to me, and the list contains several others very local in their distribution, and one or two of considerable rarity.

Chrysis austriaca	Halictus quadrinotatus
Elampus Panzeri	Andrena Gwynana
Myrmosa melanocephala	—— cingulata
Tiphia femorata	—— fulvicrus
Ceropales maculata	—— connectens
Tachytes pompiliiformis	—— Afzeliella
Nysson dimidiatus	—— hemorrhoidalis
Trypoxylon clavicerum	—— new species
Crabro tarsatus	Dasygaster hirtipes
—— podagricus	Panurgus ursinus
—— elongatulus	Nomada Jacobææ
Cemonus lethifer	—— cornigera
Mimesa equestris	—— new species
—— unicolor	Epeolus variegatus
Cerceris labiata	Saropoda furcata
—— arenaria	Osmia leucomelana
Colletes succincta	—— hirta
Sphecodes sphecodes	Eucera longicornis.

—*Frederick Smith ; 5, High Street, Newington, December, 1848.*

Capture of Chlœneus nigricornis in Cumberland.—My brother took a specimen of this common southern beetle on the banks of one of the Cumberland ‘tarns,’ in June.

—*T. J. Bold ; 42, Bigg Market, Newcastle-on-Tyne, December 26, 1848.*

Capture of Notaphus obliquus at Gosforth, Northumberland.—I caught a beautiful

specimen of this rare insect at Gosforth, in the beginning of August last. It was running about on the dry muddy bottom of the lake, in company with *Philocthus fuscipes*.—*Id.*

Note on Broscus cephalotes.—When alarmed this common beetle simulates death in rather an odd manner: opening wide its mouth, it throws back the antennæ, brings together the anterior and intermediate legs, which project at a right angle downwards, at the same time stretching outwards and upwards the posterior pair, somewhat in the manner of lethargic humble bees. Thus it patiently remains, like a dead sun-dried creature, until it finds a fitting opportunity of escape.—*Id.*

Note on Pissodes Pini.—I have, at various times during the last season, picked up in the before-recorded locality (Zool. 1805) a few more specimens of this beetle,—perhaps half a dozen in all. One of them I dug out of a stump of Scotch fir (the stump of a tree felled last winter), on the 22nd of July: it was in an oval chamber in the thick rough bark, about two inches from the top, and had evidently undergone its transformations there, as it was softer, of a paler ferruginous, and had the scaly bands and spots much darker coloured than the generality of specimens.—*Id.*

Note on Hylesinus crenatus.—On the first symptoms of decay, our ash trees (especially those in hedge-rows) are attacked by this beetle, whose galleries, running in all directions, admit the air and moisture to the inner bark and sap-wood, which, rapidly decaying, forms a proper pabulum for the larvæ of *Sinodendron cylindricum*—an agent which quickly completes the work of destruction. I frequently pass in my walks a large partially decayed oak, where a numerous colony is established: there (especially on warm summer evenings) you may see some members of the community wandering over the trunk, in search of a suitable situation for a burrow, which is generally selected at the upper end of some chink or crevice in the bark: the hole runs directly upwards for the first inch or two, and is then continued onwards, across or otherwise, as circumstances or the fancy of the excavator may direct. Not a few may be seen with their abdomens protruding from the orifice of their galleries, into which they rapidly retreat when alarmed. When seized, this species produced a brisk chirping noise, by rubbing the abdomen against the elytra.—*Id.*

Capture of Lamia textor near Bristol.—Of this fine and much-desired species no less than twenty-seven examples have fallen to my lot, viz., twenty-six in this and one in the past year. I quite agree with my friend Mr. Barton in considering it to be nocturnal in its habits (Zool. 2245), because, *first*, I never took a specimen until after 7, P. M., and sometimes when so dark that I could not distinguish between the leaf and the insect, except by *feeling* the difference; and *secondly*, with *two* exceptions, they were crawling *up* the stems of the willows when taken. It is a very local species, only one small portion of the willow-bed affording it; but I luckily discovered what I call its *metropolis*, and on one evening captured six specimens. It appears to be fond of moisture; for the greater number of evenings on which I took it were either those of very wet days or on which the dew fell heavily, and I generally got wet through from pushing my way among the willows,—to say nothing of my boots, which on every occasion were thoroughly soaked. On the evenings of one or two very fine and hot days, when I expected to do much execution, not a single insect appeared. It clings firmly to the branch up which it is climbing, and is not dislodged without some effort. The dates and numbers captured are—1847, August 18, one: 1848, July 18, the one recorded (Zool. 2245); August 2, one; August 8, three; August 18, three;

August 19, three; August 23, six; August 24, two; August 25, two; September 3, one; September 5, four. — *F. V. Jacques; Redcliff Crescent, Bristol, December 12, 1848.*

Inquiry respecting the Wireworm.—There was a curious fact mentioned in the newspapers lately, relating to the destruction of considerable numbers of partridges, by their feeding on seed grain which had been steeped in a solution of arsenic for the purpose of preventing the ravages of the wireworm. That it is effectual for this purpose I think is highly probable; and the fact of the destruction of the partridges which I have mentioned is a proof that a considerable quantity of arsenic must be taken up by the seeds,—and it does not seem to have rendered the grain in any way unpalatable to the birds. I should be glad to know whether this preparation of the grain not only prevents the wireworm from destroying the seed, but also whether it allows them at the same time to feed on it sufficiently to destroy life: in fact, whether sowing grain thus prepared is a cure for the wireworm or only a palliative?—*Beverley R. Morris, A.B., M.D.; York, January 5, 1849.*

Proceedings of the Entomological Society.

January 22, 1849 (Anniversary Meeting).—W. SPENCE, Esq., President, in the chair.

T. Desvignes, H. T. Stainton, G. R. Waterhouse, and J. Walton, Esqrs., were elected members of the Council in the room of A. Ingpen, G. Newport, J. F. S. Parry, and J. O. Westwood, Esqrs., and the following were elected to the respective offices for 1849: G. R. Waterhouse, Esq., President; W. Yarrell, Esq., Treasurer; E. Doubleday and J. W. Douglas, Esqrs., Secretaries.

The President then delivered an Address, for which and his services to the Society a vote of thanks was passed by acclamation, and he was requested to allow this address to be printed, when he intimated his intention of printing it for distribution among the members and subscribers at his own expense.

Votes of thanks were then passed to the Treasurer, Secretaries, and the retiring members of the Council.

February 5, 1849.—G. R. WATERHOUSE, Esq., President, in the chair.

The following gentlemen were balloted for and elected as members, viz., W. S. Dallas, Esq., John Lee, Esq., LL.D., F.R.S., &c.; as subscribers, G. Bedell, Esq., H. Jobson, Esq., W. F. Saunders, Esq., John Bell, Esq., M.D.

Mr. A. White, on the part of Mr. Whittingham, exhibited a specimen of *Velleius dilatatus*, found in Epping Forest, in June, 1848, in decaying matter at the root of a tree.

Mr. Westwood exhibited a larva of *Velleius dilatatus* and *Volucella* ———, found in a hornet's nest by Professor Henslow; also drawings of a species of a new British genus of Aphides, which he proposed to call *Smynthuroides Betæ*, having found them in January last on the roots of common beet, where they live in small communities. He also exhibited a male of *Osmia bicornis*, from Albert Way, Esq.,

of Reigate, found by him in the keyhole of a door, fully developed in its cocoon, on the 5th of December.

The President observed, that most, if not all, of the Coleoptera and Hymenoptera that appear early in the year undergo their change to the perfect state in the autumn previous.

Mr. Westwood, referring to the experiments of Mr. Crosse in galvanism, and the supposed production of Acari by galvanic agency, stated that he had received specimens of insects from Mr. Heal, of Knightsbridge, occurring in fluid on which a galvanic current was in operation, and which it was supposed had been developed by its agency, and found them to be *Ptinus Fur*. It was most probable that their presence was accidental, and in no way due to galvanic power.

Mr. Stainton exhibited specimens of *Cucullia Lactucæ*, which Mr. H. Doubleday had received from M. Pierret, of Paris. It was evident that this species has hitherto been erroneously reported as British.

Mr. Douglas exhibited living larvæ of *Tineæ* in poppy leaves, found in a chest of opium from India, accompanied by the perfect insect, found in the same chest.

Mr. Douglas also exhibited a specimen of *Glæa erythrocephala var. glabra*, as figured by Duponchel, taken by H. Cooke, Esq., of Brighton, in the autumn, at sugar. It is the first specimen of this species known to have occurred in Britain.

Captain Parry, on behalf of Mr. Turner, exhibited a remarkable specimen of *Goliathus*, apparently intermediate between *Cacicus* and *Druræi*.

A letter from C. A. Wilson, Esq., of Adelaide, South Australia, corresponding member, was read, announcing that he had sent various insects to the Society, and containing many interesting observations on their habits and economy.

Mr. Gould mentioned that a species of *Coccus*, in Australia, served as food for a *Platycercus*.

Mr. A. White exhibited a spider's nest, remarkable as being the receptacle for the female as well as the eggs. It appeared to belong to a genus allied to *Lycosa*.

A paper was read on the Hemipterous insects from Boutan, East Indies, describing several new species, by W. S. Dallas, Esq.

A paper was read on the Lepidopterous genus *Erycina*, describing several new species, and accompanied by three plates, presented by the author, W. W. Saunders, Esq.

The President and Mr. Doubleday made some remarks on the range and geographical distribution of species of insects and other animals.—*J. W. D.*

List of Zoophytes, &c., found near Dover.—Having, during a visit to Dover, about three months since, derived much pleasure from observing and collecting the zoophytes, &c., thrown up on the shore, I send the names of such species as occurred. Perhaps the number is not unusually large, but I do not remember to have met with so many at any one spot before; and certainly the abundance and exceeding beauty of the plumes, wreaths and silky or pearly tufts of these animal-plants, could scarcely fail to attract the admiration of the most unobserving, even of those who, regarding them merely as "sea-weed," are unaware of their wondrous structure and history. In this

affair I merely acted as collector for a lady of our party, who, as an invalid, was often unable to roam far from our lodgings; and it is from her specimens and memoranda the present list has been compiled. As a novice, doubtless many species might escape my observation, especially of the small incrusting kinds. We placed many of the species in sea-water, hoping to obtain a view of their interesting inhabitants, but only in one instance with a satisfactory result: this was in *Laomedea geniculata*, so frequently "infesting" (say the botanists, but surely a better term would be *ornamenting*) that most common of sea-weeds, *Fucus serratus*. In many of the fine purplish bunches of *Tubularia indivisa* the polypes protruded from the tubes, but hung down in an apparently lifeless state. Perhaps the heavy rains, which almost continually prevailed during the few weeks we spent on the coast, might, by soaking the specimens left by the tide, seriously impair the health of these minute creatures; as immersion in fresh water is, I believe, said to be almost instant death to them. One day, whilst we were closely watching a number of corallines placed in a glass of sea-water, a most elegant little animal made its appearance, moving along the sides of the glass by means of its tentacula (four or five in number): it was very conspicuous, from its snowy whiteness, and somewhat resembled (except in size) the magnified figure of *Hydra vulgaris* given in Johnson's 'British Zoophytes,' pl. 1, fig. 2, only far more delicate and beautiful. On one of the very few fine mornings we had whilst at Dover I walked along shore to St. Margaret's, and a mile or two beyond it. Here I was exceedingly struck with the quantity and beauty of the corallines, especially *Sertularia operculata*, bunches of which, driven by a high wind, were caught by every little plant growing above high water-mark, and their slender ramifications were so thoroughly separated by the blast as to present an exquisite and inimitable softness: I had never before seen it in such beauty or profusion.

Zoophytes found at Dover, 10th mo. (October), 1848.

Alcyonium digitatum. Common.

Antennularia antennina. Frequent.

Antennularia ramosa. In scattered fragments.

Cellepora pumicosa. Spoiling other corallines continually with its stony lumps.

Cellularia reptans.

Crisia eburnea. Abundant.

Flustra carbacea. Frequent.

Flustra foliacea, truncata and membranacea. Abundant, very large.

Laomedea geniculata. Common.

Lepralia variolosa. Common.

Membranipora pilosa. Common.

Notamia loriculata. Not common.

Plumaria cristata. Occasional, on *Halydris siliquosa*.

Plumaria falcata. In great abundance and of large size.

Serialaria lendigera. Frequent.

Sertularia abietina. Abundant.

Sertularia argentea. Frequent.

Sertularia cupressina, and also (apparently) intermediate forms between this and the preceding species.

Sertularia operculata. In profusion.

Sertularia polyzonias. Occasional.

Sertularia pumila. Common.

Sertularia rugosa. Occasional, on *Flustra foliacea*.

Thoa halecina. Frequent.

Tubularia indivisa. Abundant.

Tubularia larynx. Occasional.

Tubularia ramia. Frequent.

Tubulipora patina. Growing on *Tubularia indivisa*, &c.

Vesicularia spinosa. A single fine and perfect specimen, found about three miles east of Dover: this, whilst matted together and still wet from the retiring tide, so nearly resembled a bunch of wet wool that I had well nigh passed it without further notice.—*W. D. King*; *Sudbury*, 9th of 2nd mo., 1849.

On the Preservation of small Mammalia.—I hope to be excused if I take the liberty of instructing the readers of the 'Zoologist' in a small matter of taxidermy; but my wish to do so arises from having read some account of a shrew by Mr. Briggs (Zool. 2281), which description does not seem to agree with any other description of shrews, either by Bell, or by Jenyns in his 'Manual,' or papers in the 'Magazine of Natural History.' Mr. Briggs says, "When I saw it the flesh was in a state of decomposition, and after taking a description of the colours, &c., it was put away as useless." In the small quadrupeds, especially the shrews and voles, decomposition commences very soon after death, and the fur of the belly comes off in pieces or flakes if handled roughly: nevertheless, I have found that if the skin can be taken off and the preservative applied, the fur will, when the specimen has become dry, remain firmly attached to the skin. The best method I have seen is, to lay the animal on its back, with the head pointing to the right shoulder of the operator, then with a pointed instrument separate the fur in a line along the middle of the under parts, from the front of the sternum to the vent; a pair of very sharp fine-pointed scissors must then be taken, and an incision made where the hair has been parted: with a pair of dissecting forceps take hold of the edges of the skin, and with the spatula end of the scalpel, or, what is better, a narrow piece of ivory flattened and curved at one end, very carefully separate the skin from the body, and as fast as so separated apply powdered burnt alum to its inner surface. This, besides *tawing* it, will very rapidly absorb all the moisture, and thereby render the operation more easy: it is advisable, however, to take care that the alum does not set on the outside of the skin, amongst the fur, if there is any moisture, because it will unite with, and be taken up by, the alum, as water of crystallization. This, solidifying in the fur, cannot be removed without injury to the latter. The bones of the legs and tail, when arrived at, must be snipped in two with a pair of scissors kept for that purpose (nail scissors are the best,—the cutting part is short, and the ends strong but pointed). All this must be done with the animal still lying in the position mentioned, and it is not at all necessary that it should be moved until the present stage of the process. With the forceps the pelvis can now be taken up in the left hand, so that the skin will hang down: this is to be detached along the back, until the neck is reached, when it must be very gently shoved (not pulled) over the skull with the end of the scalpel. The body is then to be detached from the skull, and the latter—as well as the leg bones, &c.—cleaned in the usual way, and the preservative applied liberally to all the inside of the skin. This should be either some

preparation of arsenic or corrosive sublimate; for although the alum will preserve it from decomposition, it will not prevent the attacks of insects. Bullock's preservative powder I have found to answer better than arsenical soap, because it absorbs the moisture. After it has been applied the skin should be partially filled with tow, and then remain for about a day before being sewn up. The chief points to be attended to are, the careful separation of the skin after the animal is first opened, and the liberal application of the alum during that part of the process. Birds can be treated in the same way when too far gone to admit of the usual method; but as they often decompose rapidly about the head, it is necessary to open them the entire length, *i. e.*, from the chin to the vent. I believe that in however putrid a state the body of a small animal may be, the alum will effectually fasten any fur or feathers, provided they *have not been loosened* at their insertion in the skin. This has been written chiefly to take the attention of Mr. Briggs, hoping that if another shrew should occur similar to the one mentioned by him he will make the attempt to save it. In this way I have prepared numbers of the square-tailed shrew, as well as the Irish shrew of Mr. Jennings, both of which are common here, also the water and oared shrews. Among the bats it is equally applicable; and as the time for their capture is usually in the summer or autumn, they are often in a bad state for preservation. It may be well to remark, that mammals, particularly small ones, keep much best suspended by the hinder legs,—the viscera then retreat to within the cavity of the ribs, instead of coming into close contact with the skin of the belly and flanks. Before concluding, I hope Mr. Briggs will pardon me if I express some surprise at his not having found more than two species of bats: Warwickshire,—like Derbyshire,—a midland county, is more prolific in Cheiroptera. Within a few miles of Stratford I have met with nine species, some of which are considered rare in Britain, and I have no doubt there are others.—*Robert F. Tones; Welford, Stratford-on-Avon, December 20, 1848.*

Occurrence of the Badger, Otter and Polecat in Suffolk.—A fine badger was trapped at Cavenham, near Bury, in the winter 1846-7: another was supposed to have been about there at the time, but I have never yet heard of its being taken. A large otter was shot at Shadwell, near Thetford, in the winter 1844-5. A polecat—a *veritable* one, and not an escaped ferret, was caught in a trap at Elveden last October, being only slightly hurt: it is now alive and doing well.—*Alfred Newton; Elveden, January 31, 1849.*

Importation of another Specimen of the Chimpanzee.—A specimen of this valuable animal has lately been added to the Earl Fitzwilliam's collection of animals, &c., at Wentworth. It was brought to this country from the southern part of Africa, and presented to the noble Earl by a relative who is a captain in the Royal Navy. A well-prepared room in the house is appropriated to its use, having a little domicile in the centre, and warm blankets to repose on, as these animals are extremely susceptible of cold. There is likewise a good fire in the apartment, but well guarded from a too near approach. It runs or walks perfectly erect, and is about three feet in height. It uses both hands with great nimbleness—undrawing knots with dexterous ease, handles everything like a human being, and is the nearest approach to the human form, the ears being almost a *fac simile*, also the bosom and so on downwards. It is very quick in detecting any unkindness, and runs immediately to the keeper for protection. Its food is choice, and wine a favourite beverage, holding the glass till the contents are disposed of: figs are a portion of its favourite food. The arms are long,

thin and hairy, and the fingers and nails finely developed. Wombwell, we believe, had one in his collection; but this is considered the finest specimen which has been seen in this country.—‘*Doncaster Gazette*.’

Bat flying by Day.—Taking a walk with a friend in Axwell Park, I saw a common bat flying among trees, with as much spirit as ever I saw one flying on a summer's evening, and making rapid evolutions amongst thickly-studded branches of trees, and never touching them. I watched it for more than half an hour, expecting it to alight, but it never lingered, until it took a rapid dart forward amongst trees, and I could see it no more. Bats seem to fly quicker than birds, rising frequently a little upwards, then dropping instantly down and making beautiful sallying curves in rapid succession. Sun, at the time of flying, both clouded and clear; clouds moving fast and a fine day; rather warm at this season: bat evidently taking food.—*Thomas Robson; Swahwell, December, 1848.*

Cats and Nemophila insignis.—If it is desirable to multiply instances of the fondness of cats for *Nemophila insignis*, in answer to Mr. Rains' observation (Zool. 2343) I may mention that out of a large clump that I had in the spring of last year, only about half a dozen plants came to maturity after having been *rolled*, evidently by cats, while all the other plants in the same border were unmolested. My garden is not very extensive, measuring but eleven feet by two feet; but *why* the particular spot on which the *Nemophila* grew was that most preferred for the recreation of the cats did not occur to me till I saw Mr. Lawson's contribution on this subject (Zool. 2252).—*Henry Bull; Portsmouth, January 16, 1849.*

Extraordinary example of the Common Fox.—A very extraordinary male fox was found on Tuesday, January 30th, 1849, imbedded in the sand on the banks of the Wear, about half a mile west from this place, by Robert Halem, animal preserver. It had evidently been shot, and either thrown into the river, or, I think more likely, had perished in the stream by attempting to escape after being wounded; for it was shot in the left shoulder with No. 2, but none, that I could detect, had entered a vital organ. The weight was 70 lbs.: I did not see it weighed, but was so informed by two respectable men who did. The following are the dimensions, which I took: length 4 feet 9 inches (including the tail, which is a very bad one, not longer than that of a fox of the ordinary size); height at the shoulder, 1 foot 10½ inches; girth round the body, behind the fore legs, 2 feet 9 inches; girth round the neck, 1 foot 9½ inches; breadth between the ears, 4¼ inches; breadth between the eyes, 3½ inches; length of head, from the centre of the ears to the muzzle, 9 inches; canine teeth, from the surface to the gums, 1 inch 1 line.—*Joseph Duff; Bishop's Auckland.*

Occurrence of the Crested Seal (Phoca cristata) in the Orwell River.—Some months ago (Zool. 1870) I inserted the description of a seal captured near Ipswich, and which I then supposed to be new to Britain. The skull was subsequently examined by Professor Owen, who has decided it is that of the crested seal, and states that this is the first instance of its occurrence in Britain.—*Edward Newman.*

Note on the New Forest Hybrid.—I observe in your note on the new forest hybrid (Zool. 2345), you remark that Landseer's sketch, “excepting in the shortness of the tail, does not differ from the portrait of any ordinary foal.” You must surely have overlooked the *partially divided hoof*, which is clearly indicated in the engraving, and I think the most remarkable character in the animal.—*George Guyon; Ventnor, Isle of Wight, February 8, 1849.*

[I observe that the artist has represented a kind of notch in the hoofs, but there is no resemblance to the hoof of ruminants. Has no correspondent an opportunity of examining the animal's hoofs and teeth?—*Edward Newman.*]

The Elk formerly in Scotland.—Sir Walter Scott was aware of the former existence of the elk in this country, as appears from the following lines:

“Here grins the wolf as when he died,
And there the wild cat's brindled hide,
The frontlet of the elk adorns
Or mantles o'er the bison's horns.”

Lady of the Lake, Canto i. 27.

They occur in the description of the stronghold of the Douglas, in Loch Katrine. I have no means of ascertaining whether Sir Walter had any other authority for introducing the elk than the evidence of its horns, dug up more than once in Scotland. He perhaps would say, that even if he had no kind of proof of the living elk so late as the time of James V., its horns might be nailed up in the castles of the nobility, just as the antlers of the great Irish deer are in England or Ireland at the present day.—*John Wolley; 3, Roxburgh Terrace, Edinburgh, January 8, 1849.*

Dates of the Singing of Birds at Elveden.—I beg to enclose you a notice of the singing of birds at this place, which has been recorded during the past year by my brother: one such has appeared in your magazine by a northern contributor (Zool. 1067), and a comparison of the different dates and periods recorded in that, in the present, and in the “methodus” of White,* will show that they agree on the whole very well, considering the difference of the localities. It must be observed that this list cannot be of such good authority as either of the two I have mentioned, as it is only the record for one year, while both the others have the advantage of being the averages of several. I have used the Roman numerals as a short way of expressing the respective weeks of the different months.

Singing of Birds at Elveden from i January to iv December, 1848.

Thrush, from iv January to i July, and from iv November to iii December.	Blackcap, from iii April to i July. Wood warbler, from ii to iv May.
Blackbird, from i January to i July, and i December.	Willow warbler, from iii April to iv June. Chiff-chaff, from iv March to iv June and at intervals, and from i to iii September.
Robin redbreast, from i January to ii May, at intervals till ii June, and from iv July to iv December.	Pied wagtail, from i March to iv April.
Hedge sparrow, from i February to iv May and at intervals, and from ii June to i July.	Meadow pipit, from iv March to i July. Skylark, from i January to i August, and from iv September to ii October.
Redstart, from iii April to iii June.	Yellow hammer, from i March to i August.
Wheatear, from iv March to i May.	Chaffinch, from i January to iii June, and at intervals till i July.
Nightingale, from iii April to iii June.	

* Letter ii. (Barrington), ‘Natural History of Selborne.’

Greenfinch, from 11 March to 1 August.
 Goldfinch, from 11 April to 14 May, and
 from 14 January to 14 July.
 Common linnet, from 11 March to 11
 May.
 Starling, from 11 July to 14 De-
 cember.
 Wryneck, from 14 March to 1 June, and
 at intervals till 11 June.

Wren, from 1 January to 14 June, and
 from 14 August to 14 December.
 Cuckoo, from 11 April to 14 June.
 Swallow, from 11 April to 14 August.
 Ring dove, from 1 February to 11 June
 and at intervals, and from 11 July to
 14 September.
 Turtle dove, from 1 May to 14 June, and
 at intervals till 14 July.

In the above list are several birds which can hardly be said to sing, yet I know
 of no better word to express my meaning.—*Alfred Newton, Elveden, January 31,*
 1849.

Dates of Departure of Migratory Birds at Elveden in 1848.

Hooded crow.....last seen April 24	Swallow.....last seen Oct. 6
Common swift „ Augt. 30	Martin „ Oct. 7
Spotted flycatcher..... „ Sept. 15	

The different species of Hirundinidæ departed each in a body, leaving no strag-
 glers.—*Id.*

Dates of Arrival of Migratory Birds at Elveden in 1848.

Golden plover Sept. 30	Fieldfare Oct. 14
Woodcock Oct. 5	Redwing Oct. 18
Hooded crow Oct. 8	Wild (bean ?) goose..... Nov. 14

With all due deference to the opinion you have expressed in the preface to the late
 volume of the 'Zoologist,'* I feel sure that both the fieldfare and redwing, as the above
 testifies, were *somewhat* earlier in their arrival last autumn than usual. My brother
 and myself, in different places, on October 14th, saw and *heard* fieldfares, and both of
 us came to that conclusion before we saw one another; and the note of the missel-
 thrush cannot be mistaken for that of the fieldfare by any one who has heard the two.
 On October 19th a fieldfare was shot here. The first intimation which I had of the
 arrival of the redwing was finding, on October 18th, the remains of one which had
 been killed and partly eaten by a hawk, and the feathers and other remains abund-
 antly testified to the species.—*Id.*

Rare Birds near Thetford.—A fine rough-legged buzzard was killed at Santon-
 Downham in July last. An adult male marsh harrier was trapped at Croxton in the
 beginning of last September. A female hawfinch was shot at Riddlesworth some
 time last summer; it had probably bred there: two also have been killed in the
 neighbourhood in the present month,—one at Garboldisham, the other near Bury St.
 Edmunds. A male mealy redpole, in full breeding plumage, was shot at Riddles-
 worth last July: I have no doubt that this bird had bred there. A sanderling, in
 perfect winter plumage, was shot at Gasthorpe the first week of this month: another
 was seen with it, but having been shot at and missed once it became very wild, and
 was not again approached. A bittern was shot near Bury about December 14th. A
 curlew was shot on Foulmire, Wretham, at the end of August last. Three summer
 ducks (*Aix sponsa*, Boie), two males and one female, were shot at Livermere, October
 24th; some others have since been seen there: these had doubtless strayed from some-

* The dates to which I alluded were September 9 and September 12.

body's piece of water, as the bird has not yet occurred in a wild state in Britain, although one or two instances * like the present have been recorded; and if it were to occur, it would probably not be inland or in an eastern county. I may here take the opportunity of observing, that it seems to me that it would be very convenient to zoologists if persons—having had foreign or rare British birds escaped from them—were in some way or other to let them know of the fact, as it would clear up doubts as to the character of additions to our general and local fauna; and I know of no better means of conveying this intelligence than the pages or cover of the 'Zoologist,' which I have no doubt would be open to this as to every other way of assisting in the knowledge of Natural History: for this purpose a couple of lines would, in most cases, I should think, be sufficient. An immature Richardson's skua was shot on the warren here, October 30th: it had been seen the day previously, and was so tame that it settled within a few yards of a man who was mending a road, and who mistook it for an eagle which had been occasionally seen here about that time, but of the capture of which I have not yet heard authentically. While on the subject of skuas, I may say that I saw at Cambridge, last autumn, a beautiful adult Buffon's skua, which had been shot near St. Neots, Huntingdonshire, in September last. I may also as well add, that within the last ten days a black-throated diver has been taken off the coast at Lynn-Regis.—*Id.*

On some of the Rarer Birds found in Devonshire. By W. R. SCOTT, M.D.

I FORWARD you a few remarks on some of the rarer birds which have come into my possession since I last addressed you, and which I trust may not be considered unworthy of your notice, nor useless as adding to the statistics of Ornithology.

A fine specimen of the hobby (*Falco subbuteo* ?) was shot here in 1846, and I have seen one or two others shot since. I am uncertain whether the bird I have is the common hobby or *Falco rufipes*, as the specimen does not altogether agree with either of these birds as described by Mr. Yarrell. The general markings correspond pretty well with the male of *F. subbuteo*, but the thighs are of a deep rufous colour, which is one of the distinctions of *F. rufipes*, while the tarsi of my bird are of a lemon-yellow, and the orange-legged hobby as described in Yarrell has legs and toes of a reddish flesh-colour; and though the bird in its different ages is recorded as passing through several changes of plumage, still the legs appear in all cases to be the same. In the common hobby we have the legs and toes yellow, without the thighs rufous, while the other parts of the birds very closely resemble each other.

A specimen of the *Falco peregrinus* has been killed here, and I have also heard of another which has been taken in this neighbourhood. These birds I am told are yet found breeding on Dartmoor, but they are by no means common in this neighbourhood.

A specimen of the ring ouzel (*Turdus torquatus*) was taken in a trap a little way from this place, and from its plumage I should think it was a young bird, and which

* 'Zoologist,' 2067, and Jenyns' 'Manual of British Vertebrate Animals,' 237.

most likely had strayed from Dartmoor, where these birds breed regularly and are far from uncommon, though out of the moor districts they are very rarely seen. When this bird was taken it was considered a great rarity, none like it ever having been observed there before, though the place was not above six or seven miles from Dartmoor. They appear to confine themselves principally to high and lonely torrs, and there—as you wander amongst the huge detached blocks of granite—they may be observed hopping from stone to stone, and in the breeding season are by no means difficult to approach sufficiently near so as to be easily shot.

Several specimens of the small spotted woodpecker (*Picus minor*) were killed near to this city during the summer of 1847, and I found a nest in an old apple-tree in one of the nursery gardens. Two specimens of the *P. major* have been killed in the neighbourhood, and are considered rare: one was in the young plumage, the other in the old.

I have also procured a specimen of *Yunx torquilla*, and which I am told is not unfrequently found here, but I cannot consider them plentiful, from the very few people who appear to know the bird,—even those who make a habit of observing. Mr. Selby remarks that only a few of these birds are to be found in Northumberland, but in one part of that county (near Stamfordham), and where I spent the earlier years of my life, they were certainly not uncommon, for I have frequently taken their nests and kept their young; and on an evening I have often watched them gambolling, as it were, amongst some old willow-trees, and uttering their sharp note, until the deeper shades of evening closed upon them. I should almost think that evening is a time when these birds are most active, for I do not remember to have seen them at any other period of the day fluttering and chirping about so much as in the twilight.

We had here, in the winter of 1845, immense numbers of the gray phalarope (*Phalaropus platyrhynchus*). Every winter we have a few, but on this occasion they came in such flocks as had never been before noticed. They appeared to have had a long flight and to be quite worn out, so much so that many were caught with the hand, others knocked down with sticks, and shot in large numbers as they sat till very closely approached. There were several killed on the quay at Exeter; and it appeared, from the many notices in the local papers, that these birds occurred in large quantities on the whole southern part of this county. The time of their visit was in October; and an old and intelligent wild-fowl shooter, well acquainted with the birds that visit our coast, informed me that whenever the equinoctial gales blew strongly from the south-east these birds always appeared in considerable numbers, and in an exhausted condition; and this year they certainly appeared after very strong south-east winds.

Several specimens of *Anas albifrons* were shot here in the latter part of 1846, and also specimens of the brent goose.

Some specimens of *Colymbus glacialis* were procured in our rivers, but all these were young birds and in their immature plumage. I have never yet seen a full-plumaged bird shot here.

A good specimen of the osprey (*Pandion Haliaeetus*) was shot in December, 1847. This bird is not a very uncommon visitor, as almost every winter one or two are shot in the neighbourhood.

A specimen of the common skua (*Lestris cataractes*) was found dead in a field about twelve or fourteen miles from the coast: it is a fine old bird and in good plumage. In skinning it I could find no place indicating its being wounded, but it appeared to

be in poor condition, as if from some cause it had suffered much before its death.

We had during the cold weather of 1847 many of our usual winter visitors—small flocks of the golden-eye, goosander and merganser; but the continual warfare that is kept up against them hardly allows them any time to settle in the rivers,—and there can be no doubt that the constant firing which is going on prevents many of the shy and rarer visitors from coming near us.

A specimen of the spoonbill (*Platalea leucorodia*) was shot at on the warren sands at Exmouth, in December, 1847—the only one which I have heard of being seen for some time past.

We had a larger number of the siskin (*Fringilla spinus*) this winter than I have ever before seen here: many were captured by the bird-catchers, with a fishing-rod covered with bird-lime for a few inches, at the pond, as these interesting little birds are so tame, or so taken up with seeking out their food on the alder-bushes, that they sit till you come close upon them. A snow bunting (*Emberiza glacialis*) was also shot here this winter: this bird is not frequently met with in this county: it was shot upon the warren at Exmouth, and no other was seen near it. During the same winter a specimen of the glaucous gull (*Larus glaucus*), in its young plumage, was shot at Budleigh Salterton, on this coast.

The winter of 1848 has not been one of very severe weather, and hence we have not had many of our northern visitors yet with us.

The fact of fieldfares having arrived very early this year has been alluded to in the 'Zoologist.' The same circumstance was mentioned to me by a friend, who, though not much of a scientific naturalist, is a keen sportsman, much out of doors, and a close observer of all the "goings and comings" of our different birds and beasts,—so that there can be no doubt of the fact, whatever may have been the cause.

I obtained a fine specimen of the hawfinch (*Loxia coccythraustes*), and two others were sent to Mr. Truscott, bird-preserved, of this city, which were shot in the neighbourhood.

The Lestris pomarinus and the black tern (*Sterna fassipes*) have both been killed in the Eye this winter: the latter is now in the extensive and beautiful collection of Major Godfrey, of this city.

In the first week of 1849 an exceedingly fine specimen of the Egyptian goose (*Anser Egyptianus*) was shot upon this coast, and which I bought in the Exeter market. This bird had never been seen before by any of the dealers in wild-fowl here, and may be considered of very rare occurrence indeed. I have therefore much pleasure in recording its having been killed in this county. The bird was exceedingly thin and in poor condition, though its plumage was fine. In skinning it I found two old wounds, one in the breast and another near the vent,—the latter one having been rather extreme: both, however, had healed, or rather were in the process of healing, when the bird was killed.

W. R. SCOTT.

St. Leonard's, Exeter,
January, 1849.

Capture of the Sea Eagle (Haliætos albicilla) in Sussex.—I have received information from Sir Charles Taylor that a large eagle, lately observed in this neighbourhood, had been subsequently trapped in one of the great woods on the Cowdray estate. Being naturally anxious to examine, or perchance obtain a specimen of an eagle found so near me, I was just preparing to start in quest of it, when Lord Egmont kindly anticipated my wishes by sending it to me. It proved to be a male cinereous or sea eagle, in immature, but uninjured plumage. I have ascertained that the last chapter in his biography was as follows:—The bird had for three weeks frequented the wooded district in that picturesque portion of the weald which lies between Hollycombe and Henley Hill, about twenty miles from the coast, and was evidently hitherto indebted for his escape rather to the impracticable nature of his haunts than to any cunning or vigilance of his own. He had been frequently seen near some old pollard oak trees, among which, it was afterwards ascertained, he had roosted. Having, at length, imprudently ventured to make a foray upon a neighbouring farm-yard, and carried off a goose, matters began to assume a serious aspect. A council of war was called: the farmer, the game-keeper and the rat-catcher met in conclave; an alliance offensive and defensive was formed; the eagle was denounced; and all measures, whether of force or stratagem, were declared lawful, to destroy such a marauder: the first subscribed a pigeon, the second a trap, and the third a rat. Operations were commenced by laying down the pigeon near the supposed retreat of the robber, as if to test his gullibility: this was immediately carried off. The trap was then set on the same spot, baited with the rat, and by means of this ignoble lure was the poor eagle deluded and captured.—*A. E. Knox; * Petworth, December 14, 1848.*

Occurrence of the Great Gray Shrike (Lanius Excubitor) near Bishop's Auckland.—On the 24th of last December a female great gray shrike was shot on Byer's Green Moor—the only female I have known got in this neighbourhood.—*Joseph Duff; Bishop's Auckland, February 12, 1849.*

Occurrence of the Great Gray Shrike near Shoreham.—Several specimens of this bird have occurred along the coast: two of them were shot during November last, one at Lancing, the other at Southwick, both near Shoreham, and both appeared to be adult males.—*Wm. Borrer, Jun.; 1, Silwood Place, Brighton, January 19, 1849.*

Variety of the Fieldfare (Turdus pilaris).—On the 6th instant a beautiful pied fieldfare was brought me; the fifth, sixth and seventh quill-feathers in each wing being white; the greater coverts white; the scapulars mottled; the rump a cloudy white; the six middle tail-feathers white, with a dark brown bar across the end; the rest of the tail-feathers tipped with white.—*Joseph Duff; Bishop's Auckland, February 12, 1849.*

Supposed Egg of Sylvia hippolais.—In an inquiry respecting the melodious willow wren (*Sylvia hippolais*), by Mr. W. Lean (Zool. 2346), he seems to ask whether the fourth variety of the eggs described by him may not be those of *Sylvia Icterina* or of *S. hippolais*? In reply, I can assure him that I have found eggs agreeing with his description, and in the same situation as he describes, and that they are of the common wren (*Troglodytes europæus*). It was in the fens of Cambridgeshire; and on my coming to reside in Norfolk last year, I was struck with the dissimilarity in shape of the eggs of the common wren which I got there, compared with those found in Cam-

* Extracted, by permission, from Mr. Knox's forthcoming 'Ornithological Rambles.'

bridgeshire; the latter being almost globular and milk-white, seldom spotted; the former of an oval shape, sometimes with the small end prolonged, something like those of the plover tribe. I took the bird out of the nest in two or three instances, and it was most certainly the common wren. But I have eggs of the chiff-chaff taken in Norfolk, also nearly globular: the difference in size of some of the specimens of both this bird's and the common wren's eggs is very remarkable. Neither of the species is rare in this locality, although the chiff-chaff is not so common as the wren. May there not be two species of Troglodytes? as it is singular that eggs should be globular in one locality and oval in the other. There is a difference in the colour of the common wren, those in Cambridgeshire seeming very much smaller and darker coloured than those I have seen here. I may mention that the bird I last took off the nest in Cambridgeshire was *sitting* on only seven eggs, of the globular shape above mentioned.—*Henry I. Bellars, Curator of the Museum, Norwich; January 20, 1849.*

Sylvia hippolais in Britain.—With pleasure I noticed the announcement (Zool. 2228) of the occurrence of the melodious willow wren (*Sylvia hippolais* of continental authors) in this country, a specimen being recorded by Dr. Plomley to have been obtained near Dover. I have also observed the remarks by Mr. Lean (Zool. 2346), and also those by the editor in the preface to the volume for 1848, relating to the possibility of this species being a more regular visitant to the southern counties of England than has hitherto been believed, and that the great similarity existing between this and other nearly allied species may have prevented its being previously noticed. Mr. Lean wishes to know whether the eggs of *Sylvia hippolais* are known; and my object in making the present observations is chiefly on this head, as I believe I am pretty well acquainted with the eggs and nidification of this pretty songster,—and this may perhaps help to throw some light on the matter in question. Eight or nine years ago I passed two years at school in the neighbourhood of Hamburg, where the bird in question is far from being uncommon during the summer months, and where it goes under the name of 'bastard nachtigall,' or bastard nightingale,—I suppose from the qualities of its song. I should suppose that no person could easily confound it with any other of the Sylviadæ after having once seen it, as the light sulphur-yellow of its breast and under parts is much more vivid than in any other that I am acquainted with; but writing only from memory I am unable to give the precise colour, markings, &c., and can only again repeat that it cannot easily be mistaken for any of its congeners. The nest, however, furnishes a much better subject than the bird itself to distinguish it from those of other species. I have repeatedly found and taken them, and have always been struck with the extreme beauty and neatness of the construction, differing in the materials as well as form from any other nest that I am acquainted with. I will endeavour to describe its appearance, and also the eggs, to the best of my recollection. The nest is generally placed pretty high up in the hedges and thickets, and in form most resembles that of the chaffinch, but is somewhat smaller. The materials used were invariably the fine white shavings of the bark of the birch tree, mixed with white lichens and cobwebs, so that the whole outward colour of the nest was white. I do not remember what composed the inner lining. The eggs were of a fine uniform rosy pink colour, with small purple—almost black—spots, and could not easily, I am sure, be confounded with any others that I am acquainted with. The nest without any dome or covering.—*G. Norman; January 2, 1849.*

Egg of Sylvia hippolais.—In reply to the inquiry of Mr. Lean (Zool. 2346), as to whether the egg of Temminck's *Sylvia hippolais* is certainly known, I would refer

him for the information to the 'Field Naturalist,' vol. i. pp. 49—53, where he will find figures of the bird and nest under the name of the 'arbour bird' (*Philomela polyglotta*, Rennie). In that article the eggs are described as "the size of a linnet's, of a bright but pale pink, with deep scarlet or crimson spots, rather large, and irregularly scattered over them. A friend who had spent the summer of 1835 at Montpellier, on his return sent me a specimen of an egg obtained from thence, the ground colour of which is a pale pink or rose colour, with deep brown or chocolate spots, small and irregularly sprinkled over the whole surface: the man who supplied him with the eggs stated that "the nest was fixed in a batch of peas, at a little distance from the ground," but did not know to what species they belonged. At a subsequent period my lamented friend, the late J. D. Hoy, Esq., presented me with some specimens identical with the one obtained from Montpellier as the *Sylvia hippolais* of Temminck: they were obtained by him during one of his bird's-nesting excursions on the Continent, and his principal inducement in sending me the eggs was to prove that the continental species was different from our chaffinch, which has since been generally admitted.—J. D. Salmon; *Godalming, January 10, 1849.*

Occurrence of the Snow Bunting (Emberiza nivalis) near Deal.—On November 4th I shot a specimen of this winter visitor, out of a small flock on the beach: about the winter of 1847 I shot another. Both were in the plumage of the tawny bunting,—probably young birds of the year.—J. W. Hulke; 155, *Lower Street, Deal, February, 1849.*

Defence of previous Statements about the Sparrow.—I perceive that Mr. Hawley and Mr. Duff are defending the character of the sparrow. Passing over without comment all prefatory remarks, I will proceed at once to dissect the more important parts of their communications, commencing with Mr. Hawley's (*Zool.* 2348). The first observation demanding notice is, "that 3500 sparrows may find subsistence on 3400 acres of land,—rather more than one sparrow to the acre." Perfectly true it is that such number may be at the *rate* of rather more than one sparrow to the acre; but it does not follow that the destruction which the birds effect falls in an equal proportion on every acre. Two farms lie parallel to each other—one grass, the other arable; the owner of the former escapes, whilst the loss falls in an increased degree on the owner of the latter. I am next asked, "how the sparrow contrives to get at the corn?" Let me explain to Mr. Hawley that here oats and barley are *not sheaved*, but put into stacks *loose*, and he will readily perceive that the sparrow has not the difficulty he imagines in getting at this kind of corn; and that although wheat is sheaved, and when stacked the sheaves are so arranged that their corn ends incline inwards, yet the most careful reaper cannot avoid binding many ears in the outer ends, which generally fall a prey to the sparrow. Mr. Hawley again remarks, "during winter, spring, and the early part of summer, I fear that if he had nothing to eat but the grain he could collect from corn-stacks and barn-doors, his numbers would not greatly annoy *even* Mr. Briggs." This gentleman himself admits "that during some of the summer months the sparrow *feasts gloriously*," that in autumn he has "found their crops distended with corn," and that in winter, too, he has "shot them near ricks with corn in their crops." It therefore only remains for me to show that corn still is their food in the spring. Now, upon referring again to the entries in my journals, I find that as much, if not more corn, was taken from the crops of those examined during the vernal months than at any other period during the year; but no remains of an insect were visible. During the months of January, February, March, April and May, I must have

opened many hundred sparrows; and found that if their crops contained anything, that food was corn or seeds. I took, on one occasion, 220 grains of good wheat from the crops of eight birds. I say good plump wheat, not *swollen*,—as Mr. Hawley would make me to say,—but perfect grains, not chipped or broken in thrashing, which had evidently been procured from a barn or stack, and not tail-end or refuse stuff which had passed the winnowing-machine and been blown into the yard. Next comes the point about the sparrow's bill. I never denied that the bill of this bird might and could take insects; but I should certainly judge—from its short, thick, stunted formation—that its *principal* business was not to pick minute beings from the buds of trees, the leaves of plants or the crevices of bark. Lastly, Mr. Hawley says “tend the sparrows, not destroy them.” For thirty years or more this tending system was tried, but without effect; and, in another district, the system of destroying had been tried for years with complete success, with less loss to the corn, and without increased destruction of the vegetables by insects: this led to its adoption here, and so far with equal success. If the birds really do destroy the amount of insects recorded by Mr. Hawley, undoubtedly those who devised the “murderous plan” will suffer for their folly, and if so the readers of the ‘*Zoologist*’ shall know it. My calculation about the grain consumed by the sparrow was based upon the opinions of fourteen persons, all living in the country, being about their farms almost daily, and the very nature of whose occupation made them conversant with the habits, manners and characters of the feathered inhabitants which people them. After replying to Mr. Hawley's communication there is little to notice in Mr. Duff's. Mr. Duff has one ingenious conjecture, viz., that the sparrow burrows into corn-ricks for warmth or insects. May I inquire why the bird burrows into ricks of *corn*, and not into those of hay, clover or stubble hard by? Would they not be found equally warm and full of insects?—*John Joseph Briggs; King's Newton, Melbourne, Derbyshire, February, 1849.*

Further Observations on the Sparrow.—Messrs. Hawley and Duff (*Zool.* 2348), as counsel for the sparrows, have most vigorously defended them against Mr. Briggs's charge of “picking and stealing;” and indeed I in a great measure agree with those two gentlemen, in thinking it both bad policy and cruel to take the lives of so many—I was about to say harmless creatures; but when all is said and done they are arrant thieves, and in harvest time do great harm, but in the spring months—during their breeding time—I think quite counterbalance it with the good. At Bottesford Moors, the place where I live, there are a great many sparrows, and until lately I was a dreadful enemy to them, as I thought for a very good reason, which was this: a field of wheat grew adjoining to the farm-yard; as soon as it began to ripen it was attacked by a whole army of sparrows, and I should think that the part nearest the farm (probably about an acre) did not yield one quarter of wheat, while all the rest would yield three quarters and a half per acre: this enraged me I must confess, and I commenced a fiery persecution against them, which lasted with unabating vigour until the spring, when one day, having been informed there were some nests under a cart-shade, I went in search of them, and not finding them sat down to wait for the coming of the old birds. I had not waited long before one came, darted under a tile, and in a few seconds flew away again. “Well,” thought I, “now is my time to catch the young rascals;” so up I climbed to the roof of the building and drew out the nest, which contained four newly-hatched sparrows. I took the young ones in my hands, when lo! a green caterpillar crept from the mouth of one. I killed the four young birds, and each had caterpillars in it: this caused me

to relent a little; but what struck me much more forcibly was, finding several wire-worms loose in one of the nests, which had obviously escaped from the young ones. I scarcely as yet know what plan to adopt. Mr. Briggs's I think is too sanguinary, and Mr. Hawley's would soon make their numbers become unbearable. I think of adopting the following one,—that is, every year—just before harvest—to shoot some when they are destroying the corn, and at all other times to let them go free. Another “grievous fault” of the sparrow is, that they pick the buds off the gooseberry bushes every year, but I opine that they have minute larvæ in them, or they would not do it; for I have observed that there are some trees, growing within a dozen yards of those they have stripped, from which they have not taken a single bud.—*Edward Peacock, Jun. ; Messingham, Kirton Lindsay, Lincolnshire, February, 1849.*

[The picking of buds off gooseberry trees is more often attributable to the bullfinch than the sparrow.—*E. Newman.*]

Cole Titmouse (*Parus ater*) in London.—As some of the readers of the ‘*Zoologist*’ may fancy that our little russet friend, the sparrow, is the only bird we ever see in London, it may prove interesting intelligence if I state that in the latter part of last November my little garden was visited by that pretty little bird, the cole tit, who perched and jerked about with that beautiful pert activity so peculiar to this little fellow, and with a confidence that surprised me. As I suppose this bird to be a decided countryman, I should like to be informed if its appearance amongst the mass of brick and mortar of this great metropolis is not an occurrence of rarity.—*W. Atkinson ; Gordon Street, Gordon Square, February 8, 1849.*

[I have often seen this little bird in my garden at Peckham; also its congeners *Parus major*, *cæruleus* and *palustris*: all these will come to feed on suet if put out for them. Chaffinches and greenfinches come fearlessly to hempseed; blackbirds to rotten apples and raw meat; sparrows and robins to crumbs; thrushes, starlings, wrens, and, very rarely, hedge-sparrows, also make their appearance.—*E. Newman.*]

Remarkable Change in the Plumage of a Bullfinch (*Loxia pyrrhula*).—A lady, a friend of mine, related to me the following account of a favourite bullfinch, which she had some years in her possession. It was a great pet with the whole family, being a very handsome male bird and exceedingly tame. Its food consisted generally of a mixture of hemp and canary seed, plantain and green food occasionally. About two years from the time she first had it, at the usual moulting season, it shed its feathers, and instead of the reappearance of its natural plumage an entirely black one appeared. From that time to the day of its death, which took place about eighteen months afterwards, its sable hue remained unchanged, and the most minute inspection failed to discover one single coloured feather. This alteration did not appear in the least to affect its health or cheerfulness; and during the remainder of its life the black bullfinch became an object of curiosity to many, and a more important member of the family than it was when in the ordinary garb of its kind. The stuffed specimen is now in my possession. Can any one afford a clew to the reason of this peculiar change?—the more remarkable as the feathers on the breast are of the same deep black as those upon the whole bird.—*G. J. Webb ; Milford House, near Godalming, January 28, 1848.*

[Montagu says, “In confinement this bird not unusually turns wholly black.” Bewick says this bird “sometimes becomes wholly black during its confinement.” White of Selborne says that “a cock bullfinch fed on hemp-seed becomes coal-black at the end of four years.”—*Edward Newman.*]

Occurrence of the Minor Grackle (Gracula religiosa) in Norfolk.—In the latter end of March, 1848, I was informed by a gamekeeper and others that two very curious birds had been seen by them, at Waxham, near Yarmouth, resembling the blackbird, but with a white bar on each wing. I concluded a mistake had been made, and that the birds were ring ouzels; but a week after the above-mentioned time unfolded the mystery, for a bird to a distant observer answering the same description was shot at Hickling, two miles from Waxham. I have examined it (it now forms one of my collection), and find it to be a beautiful male specimen of the minor grackle (*Gracula religiosa*, Lewin), the only one I believe ever killed in England, although the gamekeeper remembers having seen a pair in the same place some years before. From which four occurrences, considering one has been killed and three seen, I think it deserves a place in our list of British birds, especially when we find birds counted "British," of which but one or two specimens have ever been obtained. In size equal to a blackbird: colour black, with blue, green and bronze reflections: head small, tapering towards the bill, which is rather more than an inch in length and of a bright orange colour, growing pale towards its edges; both mandibles are slightly feathered half the length; under each eye a small portion of the skin is bare and of a yellow colour, as also is behind the ears,—but here the skin is about three-fourths of an inch in length, part is detached, which, rising up, forms a kind of tuft on each side of the head: legs yellow: white band about midway of the greater quills. From the appearance of its plumage when shot, from the look of its feet, claws and beak, it seems never to have been a caged bird.—*W. E. Cater; Queen's College, Cambridge, January 23, 1849.*

[This is not even a European bird: it must have escaped from an aviary.—*E. N.*]

Occurrence of the Kingfisher (Alcedo Ispida) near Deal.—February 6th: I saw a kingfisher in the marshes to-day,—a very rare occurrence in this neighbourhood. May not this be owing to the great number of water-rats which swarm all the streams, destroying their eggs, as I believe they do those of the moorhen and water-rail?—*J. W. Hulke; 155, Lower Street, Deal.*

Remarks on the Migration of Swallows (Hirundo rustica).—They who have paid any attention to the subject of the migration of swallows must have frequently observed, that after the general flight has departed, and not a swallow is to be seen, a few will often appear again after a considerable interval, later in the season. This remark was well exemplified here last autumn. I lost sight of the swallows on the 5th of October, on which day I observed a few. Ten days elapsed, and not a swallow to be seen in this neighbourhood. On the 16th, however, I observed one flit across the window as I was dressing in the morning; on the 17th two appeared; and on the 18th, though it was very cold and snow had fallen in the morning, five or six swallows and one house martin were to be seen sporting throughout the greater part of the day on the south side of the house, and between the church and the sheltered walk of trees, occasionally perching and sitting in a row on the sill of one of the south attic windows of the house. In this situation they allowed us to approach them through the chamber from behind, the window being closed. They were evidently all of them young birds, which had but recently left the nest, and had yet had no great experience of the world. They remained with us on the 19th and 20th, joined, on the latter day, by a second martin, one of which, however, before evening, was found dead on the sill of the window, having perished probably from cold, to the no small grief of some members of the family, to whom they had become objects of considerable interest. On the 21st and 22nd the party was reduced to one or two swallows and one

martin: on the latter day, a little before dusk, one of the swallows permitted itself to be caught by hand as it sat on the window-sill, and, after having been duly caressed as a matter of course, was soon restored to liberty, and flew away briskly. After the 22nd we saw no more of our little feathered favourites; and whether they migrated to more genial climes (as was earnestly hoped) or perished from the inclemency of the weather, remained a problem, which, however interesting, we were unable to solve. Mr. Ellman, I perceive (Zool. 2352), observed young swallows at Rye, probably under circumstances very similar to the above, so late as from the 13th to the 29th of November.—*W. T. Bree; Allesley Rectory, February 15, 1849.*

White Variety of the Swallow.—I have a perfectly white variety of the swallow, shot here about a year and a half ago.—*J. F. Colman; Stoke Holy Cross, near Norwich, December 22, 1848.*

Late stay of the Martin (Hirundo urbana) in Suffolk.—I beg to mention that a single specimen of the house martin was flying about very briskly this day, on the beach at Gorleston, in Suffolk: on shooting it I found it to be a remarkably small bird: it is now in the process of being stuffed.—*Id.*

Late appearance of the House Martin (Hirundo urbana) near Deal.—December 8th: I saw three house martins at Kingsdown, under the cliff. I watched them for some time, in order to be sure what they were. Had they not perhaps been hybernating in some cleft, which they had left on account of the unusually warm weather?—*J. W. Hulke; 155, Lower Street, Deal.*

Occurrence of the Pectoral Sandpiper (Tringa pectoralis) near Yarmouth.—I have recently purchased, of the man who shot it, a specimen of the pectoral sandpiper, which was killed on the Denes, near Yarmouth, in the last week of September, 1848. The plumage is in a state of transition from the nuptial to the winter dress: the sex unfortunately was not ascertained by dissection, and therefore cannot be given. It appears, when shot, to have been a solitary individual.—*J. H. Gurney; Easton, near Norwich, February 2, 1849.*

Occurrence of the Bittern (Ardea stellaris) at Lyminster.—Three of these birds have been shot within a few miles of Lyminster, Hants, within the last three weeks; all fine specimens.—*J. Wright; Lyminster, January 11, 1849.*

Occurrence of Buffon's Skua (Lestris Buffonii) in Huntingdonshire.—A specimen of Buffon's skua was shot in the parish of St. Neots, Huntingdonshire, in October, 1848, after a very windy night: it was sitting in an arable field, very tame. It is now in the possession of the gentleman who shot it, G. D. Rowley, Esq., of the Priory, St. Neots, who has kindly communicated these particulars.—*John Wolley; 3, Roxburgh Terrace, Edinburgh, January 8, 1849.*

Occurrence of the Fork-tail Petrel (Thalassidroma Leachii) near Brighton.—A very perfect specimen of this bird was picked up alive, but in an exhausted state, on the 14th of December, 1848, at Rottingdean, near Brighton. I saw it the next morning at Mr. Swaysland's.—*William Borrer, Jun.; Brighton, January 19, 1849.*

Provincial Names of Birds.—None of your correspondents have provincialized the names of our water-birds. I see no reason for the neglect, and therefore, by way of commencement, send the following list. The thick-knee is a 'night curlew.' The ringed plovers are 'stone-runners.' The peewit is a 'green plover.' The oystercatcher an 'olive.' The dunlin an 'ox bird.' The redshank a 'red-leg.' The godwits are 'petrels.' The avocet bears the very significant title of 'a cobbler's awl.' These are all I can make out among the Grallatores, nearly all the Scolopacidæ being 'sandpipers.' The Natatores are better known, as will be seen below. The hooper

is well known, and bears its proper name; but the mute swan is a 'wild swan,' and Bewick's swan the 'tame swan.' I have been very particular in ascertaining the correctness of this, as it seemed to me extraordinary for a 'tame' swan to be a genuine *Cygnus 'ferus'*; yet such is the case: my informants describe the head and bill of each very correctly. The white-fronted goose is the 'speckled-belly goose.' The gray-legged, bean and thick-footed geese are all 'gray geese.' The brent goose is either a 'crocker, black, Scotch, or Seaford parson goose,' but most commonly the 'crocker' (Zool. 1501). The Egyptian goose is the 'horse-shoe goose.' The spur-winged goose is a 'ferret-eye.' The Canada, bernicle and red-breasted geese are unknown here. The sheldrake is a 'bar-gander.' The gadwall a 'bastard,' (considered a hybrid between the wild duck and wigeon by wild-fowl shooters). The shoveller is a 'spoonbill.' The common and surf scoters are 'black ducks;' the velvet scoter being a 'white-winged black duck.' The wigeon is a 'cock winder.' The pochard is a 'snuff-headed wigeon.' The scaup duck is a 'sea wigeon.' The tufted duck the 'least wigeon.' The golden-eye is a 'wigeon,' 'spectacle duck,' or 'pudding ass duck.' The smew is a 'small herring-bar.' The red-breasted merganser a 'saw-bill duck.' The black cormorant an 'Isle of Wight parson.' The tern is a 'kip.' The lesser tern a 'scurrit.' The black tern a 'black kip.' The 'crocker kip' is, I believe, applicable to the Sandwich tern; and the 'screecher' I take to be the Caspian or gull-billed tern. The black-headed gull is a 'crocker.' The kittiwake a 'sprat mew' or 'cackareer,' so called from its note. The two black-backed gulls are 'parson mews.' All other gulls are 'cobs.' The common skua is a 'wease-alley;'—what can this mean? The petrels are 'storm petrels,' in contradistinction to the godwits. The little grebe is a 'spider diver.' The three divers are 'herring-bars.' The common guillemot is a 'willy,' and the thick-billed guillemot is a 'puffin.' There are a few more names which as yet I cannot classify, owing to the extraordinary terms used here. I shall devote some time to provincialism, and may at some future period give a more lucid account. With reference to the 'crocker goose,' I trust I may be pardoned in expressing my opinion that Dr. Plomley is under a mistake in taking it to refer to the Egyptian goose: as before stated, that is the 'horse-shoe,'—a self-evident name. The brent goose is more applicable, when we consider that on all occasions when the term 'crocker' is used the bird has a *black head*.—*J. B. Ellman; Rye, February 16, 1849.*

An American Marvel.—A dead alligator, as newspaper readers may remember, which was lately found floating in the bay of New York, awakened much speculation among naturalists: the recent discovery of the skeleton of another, almost as far north, in New Jersey, is therefore not a novelty of wonder in these regions, except from the immense size of the latter, and from a matter of most curious antiquarian interest connected with its exhumation. This last alligator or crocodile, measuring thirty feet in length, was found in Eaton-town, New Jersey, about ten miles from Long Branch, while digging for marl. The skeleton lay about six feet beneath the surface in a stratum of green sand; and underneath this skeleton, as if it had dropped from the mouldering stomach of the monster, was found an ancient coin. This coin is described to us by an intelligent correspondent, who has handled it, as about the size of a dollar; its composition, in which there is a large share of silver, being probably Corinthian brass. On the face of it is the figure of a lion, with the date "6—48" in

Arabic numerals; on the reverse, amid several illegible letters, the fragmentary words "Arg. Procon. Latia Mo." may be deciphered round two larger letters in the centre, one of which is the Greek "Π" with an "R" interwoven with it. We understand that the whole of this curious matter is to be brought before some antiquarian society in the regular mode, with all the necessary testimony as to facts particular of the discovery. But while those learned gentlemen are puzzling themselves as to the consulship in which this coin was cast, and calling in the aid of the geologist to account for its locality, our quick-minded readers will instantly jump to the honest conclusion that this crocodile, who found burial amid the sands of New Jersey, had, 2000 years ago, half digested some Roman soldier in the rivers of Africa, ere he floated westward for a new meal, with the poor fellow's last coin still preserved in his maw.—'New York Literary World.'

Occurrence of the Sand Lizard at Godalming.—I captured several specimens of the green variety of the sand lizard (*Lacerta agilis*), in the summer of 1845, in Milden's Wood and on the wooded slope nearer Hurtmore: these I kept for some days, in company with two or three common lizards (*Zootoca vivipara*, Wagl.), intending to notice their habits in confinement, and to communicate anything that I might observe of sufficient interest for the pages of the 'Zoologist.' Having, however, to leave home for some time, and fearing they might come to harm in my absence, I gave them their liberty, expecting I could get more on any sunny day that I might look for them, for they were then in plenty: other matters, however, occupying my attention afterwards, the lizards were neglected until the following year, when I again searched for them in the old locality; but they had apparently become more scarce, and although I saw several I was unable—owing to the increased growth of the underwood—to secure one. During the time I kept the specimens mentioned above I noticed nothing new in their habits. Side by side with the common lizard, their superior "weight for inches" was very apparent, particularly about the head and neck. I need hardly remind you that the neighbourhood of Poole is the only other locality actually ascertained for *Lacerta agilis* in England, although, as Professor Bell and Mr. Jenyns have suggested, there is little doubt that the "green Lacerti on the sunny sand-banks near Farnham, in Surrey," seen by Gilbert White, the green lizard alluded to in one of White's letters to Pennant (No. 22), and, as Professor Bell observes, "all the accounts we have on record of the occurrence of the green lizard (*L. viridis*) in Ireland and in England, are to be referred to individuals of the same variety of our present species,"—the green variety of *L. agilis*. I have frequently heard my father speak with admiration of some green lizards he saw many years ago in the Isle of Wight. And in connexion with Pennant's account of a specimen having been procured for him in Devonshire, I cannot help thinking that Mr. Hore, in his hurry to reach the station for *Trifolium Bocconi* (Phytol. ii. 236), mistook the *L. agilis* for what he has described as "a beautiful specimen of *Zootoca vivipara*, of a splendid green colour," that he found on Goonhilly Downs.—*Henry Bull; Portsmouth, November 6, 1848.*

Note on the Cobra di Capella.—No doubt you have heard that the "Cobra di capella," that was recently in the gardens of the Zoological Society, after its death was found to have had its mouth sewed up. If this be fact, can any of your friends who have been in the East state whether this is known to be a common practice? Otherwise it seems to throw some light upon the celebrity the Indians have acquired for their art of taming the most venomous snakes.—*W. Atkinson; Gordon Street, Gordon Square, February 8, 1849.*

Occasional Occurrence of the Blindworm (Anguis fragilis) throughout the year, in

Dorsetshire.—This reptile is often met with in Dorsetshire throughout the year, on fine sunny days, basking on banks exposed to the sun. On the 9th of January, 1849, I killed one on a grass drive in Milton Park Coppice. The thermometer on that day stood at 50° in the shade; the morning fine, with sunshine; the afternoon turned out wet. On the 1st of February I met with one which had just been killed by the blacksmith on a private grass-walk leading from the Abbey to the village: it measured nine inches in length: I did not girth it. Again, on the 18th of December, 1847, while my men were engaged in taking down an old brick wall, close to the private walk above alluded to, in a crevice of this wall were found seven full-grown ones and five small or young ones: when taken up and laid on the turf close by, they immediately began—as Paddy would say—to take “leg bail;” but they were all killed. I find, by my note-book, that the thermometer on that day stood at 48°. On the 24th of the same month, and same year, I killed another, not twenty yards from where the old wall formerly stood: this one was basking in the sun: the thermometer on that day stood at 52°. From the above it appears that 50° of heat, with sunshine, is sufficient to awaken this agile creature. I generally meet with them under large stones in our woods; also under old decayed stumps of trees. Some future day I will forward an account of vipers, snakes, &c., which are abundant in our woods.—*J. McIntosh; Milton Abbey, near Blandford, Dorset, February 7, 1849.*

The Sea-Serpent?—“A snake (my friend Telford received a drawing of it) has been found thrown on the Orkney Isles, a sea-snake with a mane like a horse, 4 feet thick and 55 feet long: this is seriously true. Malcolm Laing, the historian, saw it, and sent a drawing of it to my friend.”—*Life and Letters of Campbell.*

Probability of the present existence of Enaliosaurians.—In reference to the sea-serpent a correspondent writes thus: “M. Agassiz said it would be in precise conformity with analogy that such an animal should exist in our [the American] seas, as he has found numerous instances in which the fossil forms of the old world were represented by living types in the new. He instanced the gar-pike of the western rivers, and said he had found several instances, in his recent visit to Lake Superior, where he had detected several fishes belonging to genera now extinct in Europe.” In connexion with the extraordinary discovery announced in last number (Zool. 2356) of a huge marine animal having the general figure of an alligator with the flappers of a turtle, the opinion of Professor Agassiz becomes of great interest.—*Edward Newman.*

Note on the Natterjack (*Bufo calamita*).—The *Bufo calamita* is very common around Liège, in the small pools and ditches along the railway leading towards Verviers. It is found in great numbers in the pond of the Botanic Garden at Verviers, the water of which is tepid and comes down from the collieries. It breeds much later than the common toad (*Bufo vulgaris*), spawning at the end of May or beginning of June. During the greater part of the day they lie hid in holes in the banks or under stones; but on the approach of night they creep out of their hiding-places and take to the water, where they croak incessantly: their croaking is peculiar, and more resembles that of the tree frog (*Hyla arborea*) than that of the common toad: when a great number are croaking together the effect is very unpleasant: the sound may be heard at a great distance: they do not croak as the common frog does, by repeated notes, but go on nearly indefinitely in two or three tones, the sound produced being something like the churring of the mole-cricket.—*Julian Deby; St. Josset-en-Norde près Bruxelles, January 13, 1849.*

A Young Sea-Serpent.—On Friday, while some fishermen belonging to Usan were at the out-sea fishing, they drew up what appeared to them a young sea-serpent, and

lost no time in bringing the young monster to the secretary of our Museum. The animal, whatever it may be called, is still alive, and we have just been favoured with a sight of it; but whether it really be a young sea-serpent or not, we shall leave those who are better acquainted with Zoology than we are to determine. Be it what it may, it is a living creature, more than 20 feet in length, less than an inch in circumference, and of a dark brown chocolate colour. When at rest its body is round; but when it is handled it contracts upon itself, and assumes a flattish form. When not disturbed its motions are slow; but when taken out of the water and extended, it contracts like what a long cord of caoutchouc would do, and folds itself up in spiral form, and soon begins to secrete a whitish mucus from the skin, which cements the folds together, as for the purpose of binding the creature into the least possible dimensions.—‘*Montrose Standard.*’

[This creature was probably a specimen of *Gordius marinus*. I am obliged for the extract.—*E. Newman.*]

Occurrence of Brachioptilon Hamiltoni in the Gulf of Mexico.—A few days since, as I was reading the account of the large species of ray killed off California (Zool. 2357) to my friend Captain Triscott, R.M., he related the following incident:—When in H.M.S. *Diana*, in the gulf of Mexico, in the year 1808, the launch being employed in watering the ship from the Mississippi, as he was waiting to tow her off in the cutter, about two miles from the shore, one of the men called his attention to an immense flat fish on the bottom, immediately under the boat, the shape of which reminded him of a skate or ray-fish, which it also resembled in colour, having apparently a dark grayish back, paler towards the fins. The width of the fish, comparing it with the floor of the room I am writing in, he estimates at about 18 or 20 feet. The fish kept gently raising and depressing its finny sides, and moved on almost imperceptibly. The day was calm, the water perfectly clear and little more than a fathom in depth. It was seen of course by all the boat's crew, who were equally surprised at its appearance. The mention of the circumstance, on regaining the ship, caused much surprise to all on board, none of whom had ever met with anything of the kind. I think the incident worthy of recording, as it is highly probable it is the same species as that taken by Captain Hamilton.—*George Guyon; Ventnor, Isle of Wight, February 8, 1849.*

Combat with a Swordfish.—In September last the beautiful bay of Chester, Nova Scotia, was the scene of a curious encounter with a swordfish, ending in its defeat and capture. The animal having been seen approaching, by a man on board an outward-bound vessel, notice was immediately given to the shore, and two boats started in pursuit, one bearing a *harpooner*,—or *spearman* rather,—with a hay-fork for his instrument of warfare; the fighting hero of the other armed with an axe. Having succeeded in hemming him in towards the land, they first wounded him severely with the fork, and finally despatched him with the axe; after which he was taken on board, and landed at a wharf amid the acclamations of a crowd assembled to witness the sport. This specimen measured ten feet in length, including the sword, which was four feet long. There was a thrasher also in company, who basely deserted his ally in the hour of need, and was afterwards seen making off towards the ocean.—*Communicated by Dr. Cogswell.*

Eel fascinated by a Snake.—"On approaching an almost dry drain, I saw a snake slowly extending his coils, raising his head, and stedfastly gazing on what I saw to be an eel of about a foot in length. The eel was directly opposed to the snake, and glance seemed to meet glance, when the snake, having gained the requisite proximity, darted on the eel and caught it about an inch behind the head, and carried it off; but the captor was soon himself the captive, for with a blow on his head I secured both."—*Journal of the Indian Archipelago.*

Occurrence of the Opah or King-fish on the Yorkshire Coast.—My attention was attracted the other day, in passing through one of the streets of this town, by a flaming advertisement, setting forth that the most wonderful "monster of the deep" was being "exhibited within, at the small charge of two-pence." I was of course drawn in among the eager sight-seers, thinking it was nothing less than the veritable sea-serpent, which of late has caused so much discussion, and has been one of the chief wonders, second only to the golden discoveries in California. My expectations were, however, not gratified by viewing this monster, but found instead a fine specimen of the opah (*Zeus imperialis*), weighing about 80 lbs., which had been caught the day before, off Flambro' Head, in a fishing-net. It certainly was the most beautiful fish I ever beheld: the coral-red fins and tail, and the reddish coloured and glittering scales, made it a really magnificent object. I believe this fish is very rare on our coast, and therefore thought its occurrence worthy of being noted.—*G. Norman; Hull, February 28, 1849.*

Reply to Mr. Newman's Inquiries respecting the Bones of the Stronsa Animal.—Seeing your queries (Zool. 2358) regarding the bones of an animal cast on shore at Stronsa, described by Dr. Barclay in the 'Memoirs of the Wernerian Society,'—after some little trouble I have been able to answer most of these questions.

1. How were the bones described by Dr. Barclay obtained?—It will be seen in the 'Wernerian Memoirs' (vol. i. p. 438), that George Sherar, one of those who saw the animal, mentions that he brought away, to deliver to Mr. Laing (the Scotch historian), the skull, two joints of one of the largest limbs next the head, with different parts of the back-bone, besides the bones that were formerly sent in. Mr. Laing, I suppose, forwarded them to Dr. Barclay.

2. What is the evidence that they belonged to one animal?—The answer to this is simply that the aforesaid George Sherar took them from the same animal.

3. Where are these bones preserved? 4. What is their present state?—Three of the vertebræ are in the Museum of the Royal College of Surgeons, Edinburgh, in a dried state, and are 6 inches in diameter; and four in the University Natural History Museum, preserved in spirits, and are still articulated to each other, whereas the other three are separate.

5. Has the skull ever been denuded of skin, muscle, &c.? 6. Has it ever been examined by a competent comparative anatomist? and, if so, what opinion has he pronounced on it?—This is answered by the annoying fact that the skull has not been preserved.

On inquiring of Professor Goodsir with regard to the vertebræ, he tells me he has examined them, and that they are undoubtedly those of a shark (*Squalus maximus*), as are the skull, sternum and scapulæ, figured in the 'Wernerian Memoirs,' p. 418.

We would naturally suppose that the affidavits of those who saw this extraordinary animal would be of some avail; but on closer inspection even these will be found to have little weight in the argument. In the first place it is unfortunate that no well-

educated person saw it: they were all ignorant, illiterate men, who most likely knew nothing further of a shark than that it was an animal with a huge mouth, capable of discussing so many seamen at a bite, and whose teeth were peculiarly adapted for amputating limbs. In the next place we find these witnesses agreeing in one most absurd particular, viz., in the animal having six legs: on this point it is needless to expatiate; every one knowing anything of comparative anatomy must see at once the impossibility of such a structure: moreover, even granting its possibility, it is at once cancelled by Mr. Urquhart's figure of the sternum and scapulæ with an ordinary fin thereto attached (Wern. Mem. vol. i. p. 418): the third pair of appendages Dr. Fleming, in his 'British Animals,' supposes were claspers. In the last place we may notice one striking contradiction in the evidences: Thomas Fotheringhame seems to have been astonished at such a large animal having such a narrow throat,—so narrow indeed that it would not admit his hand; while George Sherar would have had no difficulty in putting his foot down it: and as there is nothing to prove that Thomas Fotheringhame's hand was larger than George Sherar's foot, we are led to the conclusion that one or other must have made a mistake in his calculation.

We might further suggest the improbability of any animal sixty feet long having a head only seven inches in diameter, and we might even suspect the carpenter's foot-rule of showing a decided taste for the marvellous; but we must now conclude with this single remark, that if the Stronsa animal was not a shark it was certainly not the great sea-serpent, which, if it does exist, will most likely be allied to the Plesiosaurs of by-gone days, and to which the animal seen by the Rev. Mr. Maclean, Eigg Island (Wern. Mem. vol. i. p. 442), seems to have borne a strong resemblance.—*Jas. C. Howden; Musselburgh, February, 1849.*

Occurrence of the Mailed Gurnard (Peristedion malmarmat) in Cornwall.—A specimen of this very rare British fish was taken in February, at the south-western entrance to Mount's Bay, about eight miles from the shore. It was taken in a trawl net. It is $11\frac{1}{2}$ inches in length: the colour is of a yellowish vermilion tint, fading to a light flesh colour towards the abdomen. Mr. Yarrell's description of this fish is very accurate. The edges of the nasal plates are finely serrated; about half an inch posterior to the inner margins of each is a stout sharp spine, and behind another smaller one; about half an inch behind these, and in the median line, are five others closely aggregated. The margin of the orbit and the supra-orbital ridge are strongly denticulated; the superior ridge is continuous with the denticulated angles of the body. Body octangular and cased in armour, with stout spines at each angle pointing posteriorly. The fin rays are—dorsal 7, 18; pectoral 10, 2; ventral 1, 4; anal 18; caudal 13. The tendrils of the first dorsal are very short. The first recorded British specimen of this fish was taken in 1836 near Plymouth, and fell into the hands of Dr. E. Moore, who communicated it to Mr. Yarrell. It was caught in deep water over rocky ground, and, according to the trawler, is very rare.—*R. Q. Couch; Penzance, March 2, 1849.*

Breeding of Trout by the Artificial Process.—Mr. Samuel Gurney, Jun., has kindly given me some specimens of embryo trout raised by the artificial process so fully described by Mr. Boccius (Zool. 2364). He informs me that the experiment has been attended with the most entire success. The little animals are extremely curious, and differ fully as much from the adult trout as the young of various Crustacea do from their parent: they consist mainly of a transparent oval gelatinous mass, very evidently the yolk of the egg, and the fish itself is attached to the upper surface

of this, and is extremely thin, transparent and fragile: the head has something like a neck: the face is prone and not porrected; and the eyes extremely large, black and prominent: the pulsations of a large artery which passes from the neck of the fish into the attached egg is distinctly visible.—*Edward Newman; March 18, 1849.*

New Shell.—"We are informed by Mr. Strange, the naturalist, that he has recently discovered a new species of the genus *Myochama*, of which but one has been hitherto known to conchologists, and is described by Sowerby as *Myochama anomioides*: it is strictly a parasite shell, but not confined to one genus, as Mr. Strange had been led to believe. It had been always supposed by scientific men that the *Myochama* only attached itself to the *Trigoina pectinata*, but Mr. Strange has found it on the *Pectunculus Struthiolaria*, the *Pandora*, the *Venus*, and *Crassatella*. A second species of this genus was found in sixty feet water on a sandy bottom: the first specimen brought up by the dredge was on a dead valve of a species of *Mytilus*, since which he has found it attached to dead valves of the *Cleidothærus* and a species of *Lima*; and he has one attached to a piece of flat sand-stone. It is rather singular that he has never found one of the new species attached to a *Trigoina* or any other shell which the *Myochama Anomioides* generally appends itself to."—*Sydney Paper.*

Note on a Species of Bulimus.—"Here (near Sinope) I observed an elongated shell, a species of *Bulimus*, peculiar to the basin of the Black Sea, hanging in great numbers from the branches of almost every shrub. The appearance of this graceful shell, in such abundance as to resemble the fruit of a plant, is very striking, and presents a remarkable instance of the manner in which Nature adapts herself to the various exigencies of animal life. The slimy secretion of the animal is dried up as the hot weather comes on, forming an air-tight substance, by which it is defended from the effects of the heat, and at the same time suspended from the branch; with the returning moisture the slime is dissolved, and the animal is at liberty to seek its food. Thus these creatures remain in a state of torpidity during the summer, whereas others generally pass the winter in that state. Tournefort (Engl. Transl. ii. 330) calls this shell a *Buccinum*."—*Hamilton's 'Researches in Asia Minor,'* i. 319.

Downy Epidermis of Paludina vivipara.—Is it generally known that the young shells of *Paludina vivipara* are, sometimes at least, clothed with a downy epidermis, rising into short spines round the middle of each volution? The first such specimen which I met with had so striking an appearance that I was ready to pronounce it something quite new; but it is impossible to preserve the covering in perfection, as much of it disappears in drying. I cannot find this peculiarity mentioned in any of the works on Conchology within my reach.—*W. D. King; Sudbury, 13th of 3rd mo., 1849.*

Extraordinary abundance of Bulla akera at Walton-on-the-Naze.—I do not know whether the extraordinary abundance in one locality of a mollusk which, at least in my experience, had appeared rare, or not easy to obtain, may be worth recording in the 'Zoologist;' but, possibly, to any conchologist who should chance to visit the coast of Essex, the information may not be unwelcome that, at Walton-on-the-Naze, the delicate *Bulla akera* is to be found in countless multitudes; not, as far as I have

observed, in the open sea, but in the creek or "back-water," near a tide-mill, and almost at the back of the village. At this place the retiring tide leaves upon the mud thousands of the above-mentioned fragile and elegant shells: such, at least, was the case at the time of my visit, early in the summer of 1847; every bunch, or heap of drift, &c., being clustered thick with them, generally containing the dead and decaying animals. But it was in the water that the sight of these curious creatures most delighted me; and here I watched their movements at leisure, after securing an abundant supply of specimens for the cabinets of my friends. As in the other Bullæ, the animals are so large in proportion as to make the shells appear but an inconsiderable appendage, and, when at rest, partially to envelope them; but in swimming the Bullæ seemed alternately to expand and contract the lobes of the mantle on each side of the shell,—thus propelling itself forward, as well as sinking and ascending at pleasure, with a most graceful and peculiar motion. It was only in the hot sunshine that we could succeed in obtaining a sight of these proceedings, and not always even then. When brought home and placed in a glass of sea-water, they quite refused to gratify us, merely hanging to the sides of the vessel, or moving only in the manner of a leech. Amongst the multitudes left on the banks of the creek, and those obtained in a living state from their native element, none were of large size, scarcely any appearing more than half grown, as compared with Devonshire and Irish specimens. Few other shells occurred in company with these: there were two or three small species of *Littorina* in some plenty, with *Conovulus denticulatus* and *albus*; also the young of one or two common bivalves. *Cardium fasciatum* has been found on the shores of the creek, but I believe only as a rarity; *Bulla aperta* in the open sea not far distant, its pure glossy shells being blown like bubbles along the sands.—*Id.*

Inquiry respecting the Preservation of Crustacea.—Many of the readers of the 'Zoologist' are doubtless interested by the suggestions of the Rev. G. Gordon for obtaining specimens of Crustaceous animals, and would gladly avail themselves of the proposed plan if acquainted with the method of preserving them. A few simple directions for effecting this object, if published in the 'Zoologist' while the subject is fresh, would be exceedingly acceptable.—*Scoticus.*

On the Sense of Touch in Spiders.—Mr. Slater's communication (Zool. 2328) has led me to pen the accompanying one as confirmatory of his observations. I have observed, in the case of those spiders which haunt the crevices of dry walls and spread their traps upon the surface of the stones, that unless their eyes possess a power something analogous to that of the Irishman's gun, it must be impossible for them to ascertain by their means the fact of a fly's entanglement, much more the locality of such an occurrence: but no sooner does an unfortunate alight on his premises than forth comes the spider (sometimes from depths which rendered him altogether invisible), and that too very promptly, and, peering over the edge of the stone, examines

his prey. Now not only must the sense of touch be employed, but that sense must be extremely delicate, seeing that you cannot deceive him and bring him forth by artifice. I have often tried (being desirous of receiving the embrace of one of "the ugly little creatures," in order to observe more minutely its organs of destruction), but could never succeed even in persuading one to come and see what was the matter: if he was visible he would withdraw from sight further back, even when by no possibility was a view of the "disturbing power" to be obtained. Not even a dead fly would induce one to come forth, though when the wind agitated the wings sight at least might have been deceived. That the Arachnida do make use—and good use—of their eyes, every-day experience and indeed the fact of their large size and useful form demonstrate.—*J. S. Webb; Newhouse, Huddersfield, December 4, 1848.*

Capture of Lepidoptera in Scotland.—The natural, and perhaps most of all the entomological, productions of Scotland are as yet in a chaos of confusion; and believing as I do that the meanest efforts to reclaim them may still be of some use, I have ventured to draw up for the 'Zoologist' a few notes of my entomological captures, principally in the neighbourhood of Edinburgh, trusting that it may elicit further communications on the subject. To Mr. Logan of Duddingstone, and Mr. Hardy of Penmanshiel, I am much indebted, as—owing to the deficiency of our public libraries and want of a public collection—I never could have hoped even to have named my insects without their assistance.

Chaerocampa Celerio. A specimen of this fine insect was sent me alive, last September, which had been taken at Hoptown House, West Lothian. This, I believe, is the second instance of its occurrence in Scotland; the other having been captured at West barns, near Dunbar, East Lothian, by Charles Nelson, M.D., now of Lytham, Lancashire.

Anisopteryx leucophearia. A single specimen on the trunk of an oak, in Duddingstone Park, February 19th, 1848.

Lampronia luzella. I captured a specimen of this insect in a small damp wood, near the village of Ormiston, East Lothian, about the middle of June, 1848.

Anchylopera cuspidana. One specimen, along with the preceding. Mr. Hardy has also taken this insect in Berwickshire.

Euclidia mi. Widely distributed, and generally abundant where it does occur, though local: Gullane Links, East Lothian, May, 1847-8; Arniston Woods, Edinburgh, May, 1848; marshy ground near Kinglassie, Fifeshire, June, 1847; Aberdeen, July, 1847.

Emmelesia albulata. Links to the north of Aberdeen, abundant, July, 1847; Ormiston, June, 1848, abundant.

Eupithecia subfuscata. Musselburgh, June, 1847-8, occurring sparingly in gardens; Fife, June, 1847; Links, Aberdeen, July, 1848, but nowhere plentiful.

Hepialus velleda and *Phibalapteryx lignata.* Both plentiful on the Links at Aberdeen, along with *Cidaria munitata*, *Carpocapsa cana*, *Lozopera straminea*, *Sericoris cespitana*, and *S. micana* of Stephens, which occurred sparingly in July, 1847.

Pseudotomia aurana, *P. simpliciana* and *Tortrix viburnana*. Rather abundant on Umbelliferæ on the banks of the Don, near its mouth, along with *Zelea Curtisella*, *Lozopera badiana* and *Eudorea lineola*; Aberdeen, July, 1848.

Adela Panzerella. Very common in a wood on the banks of the Esk, a little above Musselburgh, May, 1847.

Cheimatobia rupicaprararia and *Hibernia prosapiaria*. Plentiful on the banks of the Esk, above Musselburgh, February, 1848.

Lampropteryx badiata. Abundant near Musselburgh, May, 1848. This insect showed a decided preference to flying by moonlight, which is something unusual in nocturnal Lepidoptera.

Pterophorus nigadactylus. Banks of the Esk, May, 1848.

Pterophorus trigonodactylus. Plentiful in a sand-stone quarry between Musselburgh and Preston Pans, May, 1847.

Lampropteryx suffumata, *Margaritia fuscalis*, *Biston betularius* and *Orthotænia comitana*. Marshy ground near Kinglassie, Fife, June, 1847.

Phragmatobia fuliginosa. Abundant on Gullane Links; the caterpillars very numerous in September; the moth appearing in May.

Acronycta Rumicis. Ormiston, 1847.

Nomophila hybridalis. Musselburgh Links, June, 1847.

Sericoris micana, Guenée (*Orthotænia Haworthana*, Steph.) Borthwick Castle, very abundant in marshy ground, in July, 1848.

Anticlea nigromaculana. A single specimen on a thistle at Borthwick, July, 1848.

Polia chi. Ormiston, September, 1848.

Microsetia aurella. Very abundant on whitethorn hedges in the neighbourhood of Ormiston, in September, 1848.

Graphiphora Dahlii. Fountainhall Woods, near Ormiston, September, 1848.

Cnephasia 8-maculana. Ormiston, September, 1848.

Pseudotomia senectana. Musselburgh and Aberdeen, 1847.

Cochylis subroseana. Marshy ground near Kinglassie, Fifeshire, June, 1847.

Depressaria Alstræmeriana. Banks of the Esk, above Musselburgh, June, 1847.

Mythimna conigera. Rather abundant on rush blossom at night, July, 1848.

Spilonota Pflugiana. Aberdeen, Gullane Links, &c., June and July, 1847.—*Jas.*

C. Howden; Musselburgh, February, 1849.

Captures of Lepidoptera at Brighton in 1848.—The following is a list of my chief captures during the past season in this neighbourhood.

Diptera Orion. One, June 14, at sugar.

Acronycta Alni. Two, May 22 and June 2, at sugar.

Acronycta Ligustri. Six, June, at sugar.

Gastropacha quercifolia. Two bred; larvæ taken May 11, emerged June 28.

Liparis monacha. Five bred; larvæ taken May 20 to June 2.

Limacodes testudo. One, June 26, beaten from an oak.

Lithosia miniata. Four, June 17 to July 21. Three beaten from mixed hedges and one taken at sugar.

Lithosia aureola. Four, May 13 to June 11. Three on the wing and one beaten from a pine.

Lupernia cespitis. One, August 2, on the wing, evidently attracted by my lamp.

Agrotis corticea. Two, June 22, at sugar.

- Agrotis aquilina*. Two, July 29 to August 11, at sugar.
Agrotis nigricans. Five, July 29 to August 11, at sugar.
Agrotis suffusa. Seven, August to November, at sugar.
Agrotis obelisca. One, July 29, at sugar.
Agrotis cinerea. Two, May 13 and 22, at sugar.
Caradrina blanda. Nine, July 7 to August 3, at sugar and on wing.
Noctua hebraica. One, September 9, at sugar.
Calocampa vetusta. Four, September 9 to October 11, at sugar.
Calocampa exoleta. One, November 18.
Thyatira batis. Twelve, May 13 till end of June, and two beautiful specimens in August, at sugar and on wing.
Thyatira derasa. Twelve, July 1 to 18, at sugar.
Xylophasia sublustris. Ten, July 1 to 18, at sugar.
Xylophasia hepatica. Twelve, June, at sugar.
Hadena contigua. One, June 28, at sugar.
Dianthæcia carpophaga. Five, June 2 to 28, on flowers.
Dianthæcia conspersa. One, June 28, at rest on wall.
Neuria saponaria. Nine, June 9 to 23, at sugar and on flowers.
Aplecta nebulosa. Twelve, June 10 to 30, at sugar.
Aplecta herbida. Twelve, June 10 to 30, at sugar.
Polia serena. Five, June 27 to July 2, at rest on walls, &c.
Apatela leporina. One, July 11, at sugar.
Bryophila glandifera. Five, July 21 to 29, on walls.
Cymatophora viminalis. Twelve, July 1 to 19, at sugar.
Cosmia affinis. Five, July 3 to 11, at sugar.
Cosmia diffinis. One, July 12, at sugar.
Xantholeuca croceago. One, October 26, at sugar.
Xanthia rufina. Nine, October 11 to November 16, at sugar.
Xanthia silago. Four, October 11 to November 16, at sugar.
Xanthia cerago. Nine, October 11 to November 16, at sugar.
Toxocampa pastinum. Four, June 10 to 27, on wing.
Catocala nupta. Two, July 12 and August 28, at sugar.
Catocala sponsa. July 20, at sugar.
Catocala promissa. Seven, July 4 to August 1, at sugar.
Hylophila prasinana. Two, June, on wing.
Hylophila quercana. One, July, beaten from an oak.

In addition to the above I captured a great many commoner species not worth publishing.—*H. Cooke* ; 183, *Western Road, Brighton, March 1, 1849.*

Note on Melitæa Dia.—I regret to say that the capture of the specimens to which I alluded in a late number (*Zool.* 2364) is not corroborated as having occurred in Britain. I now suspect that a fraud has been intended.—*Edward Newman.*

Note on Episema cæruleocephala.—For several years past I have found the caterpillars of the figure-of-eight moth abundantly on the common laurel in the garden, and have fed them exclusively with the leaves of that shrub. When the perfect insects appeared the food of the caterpillar became the poison of the moth; they were stifled with the bruised leaves of the same plant which had been their food in the larva state.—*R. C. Douglas* ; *Forebridge, Stafford, March 5, 1849.*

Capture of Lithosia pulchella at Lymington.—A friend informs me that last summer he received alive a specimen of this rare insect, which he presented to Mr. Desvignes.—*J. B. Ellman ; Rye, March 5, 1848.*

Capture of Glæa erythrocephala in England.—In November, 1847, whilst sugaring, in the parish of Hurst (about seven miles hence), I had the good fortune to meet with a fine specimen of this insect, in company with *Glæa Vaccinii* and *G. spadicea*. It at once attracted my attention as being something fresh, but I could not discover what it was, nor could any of my neighbours assist me. A short time since I showed it to Mr. Douglas, and also to Mr. S. Stevens, and ultimately it was discovered to be the true *Glæa erythrocephala*, *Hübner*, var. *glabra*, *Duponchel*. It was exhibited at the last meeting of the Entomological Society, and being an addition to our *Noctuæ* of course created interest. I have constantly visited the same locality, at the proper season, but have not succeeded in capturing another. This is, I believe, the only authenticated specimen of the species in Britain, and as such is a prize. I shall be happy to give further information to any gentleman who may send a request to that effect, addressed as follows.—*H. Cooke ; 183, Western Road, Brighton.*

Capture of Polia Lichenea.—My friend Dr. Nelson, of Lytham, near Preston, beat a specimen of *Lichenea* out of a whin (furze) bush, on the sea coast, about two miles below the above locality, in the month of September. This is a new locality for this rare species.—*J. B. Hodgkinson ; 12, Friday Street, Preston, December 7, 1848.*

Capture of Anisopteryx æscularia.—A pair were taken on the bole of an ash tree, on March 4th. The female is somewhat larger than that of *Hibernia leucophæaria*. The upper side is of a shining mouse-colour; the under side is pale ash, with faint irrorations: the abdominal segments are marked on each side with a series of dark dots: the anal tuft, which is a little paler than the abdomen, is the most striking character. The insect appears to be entirely apterous.—*Peter Inchbald ; Storthes Hall, Huddersfield, March, 1849.*

The Genus Eupithecia.—I wish to call the attention of entomologists to the species of this pretty genus: they have been very little attended to in Britain, and probably many species will be discovered which are not yet recorded as British. I should feel much obliged by perfect specimens of any doubtful species being sent to me for examination, and grateful for any duplicates, as I wish, if possible, to get our species correctly named, which can only be done by sending specimens to the Continental naturalists for examination, it being very difficult to name these nearly allied species correctly from either plates or descriptions.—*Henry Doubleday ; Epping, March 14, 1849.*

Note on Lamia textor.—I observed the remark (*Zool.* 2374) respecting the nocturnal habits of *Lamia textor*. More than twenty years ago I captured myself, or knew others to capture, on various occasions, several fine specimens of this insect, in an old osier-bed on the Gloucestershire side of Bristol: but I believe my memory serves me well when I say that my own experience, and that of my friends, was exactly the reverse of what is now recorded by the Bristol correspondent of the 'Zoologist.' I never knew a specimen to be taken except in the hottest part of a hot summer's day; and I recollect we used to consider such a time to be the favourable season to look for the insect. The osier-stools on which we found the insect were very aged, and the bed has been long since destroyed; but the capture was thought

a good deal of among collectors at that time, as being a rare occurrence.—*William Lean; Birmingham, 6th of 3rd mo., 1849.*

Proceedings of the Entomological Society.

March 5.—G. R. WATERHOUSE, Esq., President, in the chair.

Present—Dr. Lee, Messrs. Spence, Walton, Desvignes, Stephens, Stainton, Yarell, Westwood, Parry, Ingpen, White, Doubleday, Wing, Stevens, Dallas, &c.

Mr. Spence presented to the Society four hundred copies of his Address, delivered at the last Anniversary Meeting of the Society.

H. F. Farr, Esq., P. H. Vaughan, Esq., and W. J. Wild, Esq., were elected members of the Society; and H. Cooke, Esq., George Ingall, Esq., Thomas Ingall, Esq., and A. Maitland, Esq., subscribers to the Society.

A beautiful collection of Tineidæ, purchased by subscription from Herr Mann, of Vienna, with a view of assisting in unravelling their synonymy, was exhibited.

Mr. Westwood informed the meeting that the vacancy in the Berlin Museum, caused by the death of Dr. Erichson, had been filled up by the appointment of a local entomologist, whose name was all but unknown. Mr. Westwood added that he was sure all present who knew Dr. Schaum would regret that he had been passed over in this appointment to a situation for which his eminent talents so well qualified him.

Mr. Westwood read the following letter from W. Atkinson, Esq., of Gordon Street, Gordon Square:—

“I take the liberty of requesting the name of the insect that has made such destruction in the cork that I send you herewith. I first made the discovery of such an enemy in my cellar about two years since, and during that period have occasionally succeeded in drawing a cork with the larva alive in it (of a fine delicate whitish colour, with a light brown head), but generally the insertion of the corkscrew—acting like a wedge—crushes it entirely. It is not a little remarkable that during all this period I have never once seen anything in the shape of a beetle, nor have I ever seen any insect about the bottles in the bins, although I have made a practice of a careful examination—in hopes of catching the beetle—every time I enter my cellar. Some time after I first noticed this destruction in the corks, I showed one to an entomological friend, who at once pronounced it to be *Cryptophagus cellaris*; but upon reference to the works in my possession—say Kirby and Spence, Stephens’ ‘Illustrations,’ and Samouelles’ ‘Compendium’—I cannot find the slightest allusion to the insect of that name as eating *cork*, neither under the head of *Dermestes*, *Ptinus* or *Anobium*, which seems to me the more surprising—particularly in Kirby and Spence, where the subject of destructive insects is so fully treated—as my wine-merchant informs me that there is scarcely a wine-merchant’s cellar in London that is free from them, consequently thus spreading the nuisance to their customers’ cellars; and in some cases of private cellars the ravages have been so serious as to cause the obligation to re-cork nearly the whole contents of a cellar, which is a serious affair, as placing a gentleman in the awkward predicament of losing his wine by its running out of the bottles, or quite spoiling it by the operation of recorking. I should much like to be informed if at any time this plague has been brought before the notice of

the members of the Entomological Society, and if so where I could read any particulars respecting it, and if any mode of eradication has been suggested, as, once in a cellar (the enemy being inclosed in the bottles, as it were), I cannot conceive any mode of getting rid of it without disturbing the wine, thus making the remedy as bad as the disease. When the corks have been the most eaten, I have noticed the neck of the bottle about the cork has been covered with a very tender ropy web. As from reading the notices of *Cryptophagus*, in the works I have named, dampness in cellars seems implied, I will just observe that my cellar is perfectly dry, and the corks eaten quite as much in upper bins as in those on the ground.—W. ATKINSON."

The larvæ were evidently Lepidopterous,—and Mr. Westwood considered them to be identical with those exhibited some time since by Mr. E. Doubleday, from which Mr. Stephens bred a specimen of *Gracillaria V-flava*. Various suggestions were made as to the means of destroying the insects; and Mr. Bedell expressed his belief that the common food of the larvæ of *Gracillaria V-flava* is a species of Fungus.

Mr. Westwood exhibited drawings of a remarkable species of insect infesting the peach-tree in peach-houses, and evidently allied to, if not one of, the *Aphidæ*. These insects, apparently in the pupa state, were found in small silken cocoons, and in form resemble an *Aphis*, are covered with down, have the legs free, are active, but apparently have no mouth.

Mr. Westwood, on behalf of Mr. Bond, exhibited a box of Australian insects, collected by Mr. A. Barlow on the Mundarra River, four hundred miles north of Sydney, amongst which were a new species of *Carenum*, some fine *Pambori* and *Calosomata*, a new *Cerapterus* and many other rare species.

Mr. White exhibited a specimen of one of the *Rhynchophora* from Port Natal, the beak of which was fixed in some solid substance, from which apparently the insect had been unable to extract it, and from the scutellum of which grew a fungus. He also exhibited a specimen of a *Cerapterus* from Port Natal, probably a variety of *C. Smithii*, without the white spot; and gave a short account of some new *Cetoniadæ* and *Hydrocanthari*.

Mr. Westwood read descriptions of a new genus of *Helopidæ*, for which he proposed the name of *Prophanes*; and of two new species of *Carenum*.—E. D.

Reasoning Power in the Dog.—The following instance of the reasoning powers of the dog happened some time ago to come under my father's notice: it bears a striking similarity to one mentioned by Mr. Atkinson in his paper on "Reason and Instinct." My father was one day out shooting with a setter bitch: he shot at a hare, which he wounded, but did not kill: the setter instantly gave chase; Puss jumped an adjoining brook, and was quickly followed by the setter, which overtook her in a little time and brought her dead to the side of the brook; but here was a difficulty,—the brook, although not very wide, could not be jumped with the hare; but Doll was not without an expedient: she dropped the hare into the stream, then ran some yards down it, sprang in, caught the hare in her mouth as it floated down, and swam with it to the other side, where my father took it from her.—*Edward Peacock, Jun.; Messingham, Kirton Lindsay, Lincolnshire, March, 1849.*

Frequent Occurrence of the Badger, Otter and Polecat in Dorsetshire.—It would appear, from Mr. Newton's communication (Zool. 2379), that it is a rare occurrence to meet with the badger, otter and polecat in Suffolk: now the occurrence of these animals in the county of Dorset is anything but rare. I have in my possession a very fine polecat (*Mustela putorius*), caught in a trap in our coppice wood, where, at times, they are rather too plentiful; yet I cannot record any serious mischief committed by them to the game. The keepers frequently meet with them in their traps. I have also one of the finest otters (*Lutra vulgaris*) I have ever seen: it was caught on the bank of the river Stour, at Spettisbury, a small village near Blandford: it measures from the tip of the nose to the tip of the tail 4 feet 7½ inches. Nor is this the only one; for within the last three years I have seen four others taken by different individuals within one mile of the above-named village, not quite so large as the one I possess. Of the badger (*Meles taxus*) I only know of two having been caught; but I believe in some parts they are to be met with at times plentifully,—at least, according to the information of a sporting friend of mine in this neighbourhood, who has undertaken to procure me a specimen. While on the subject of badgers, I am happy to state that the barbarous sport of "badger-baiting," amongst the rustic population, is now at an end,—no doubt from the spread of an useful education; and I hope the day is not far distant when "Societies for Killing Sparrows" and other small birds will be equally rare, through the same laudable means.—*J. McIntosh; Milton Abbey, March 8, 1849.*

Cats and Nemophila insignis.—Allow me to confirm, from repeated observations in England and Scotland, the truth of Mr. Bull's statement (Zool. 2289), of the fondness of cats for this plant. A lady friend of mine, in Scotland, had several patches of *Nemophila* in her garden, and in boxes for the windows. She never could get this plant to flourish; for as soon as it was about an inch high her favourite cat invariably selected the plant to bask on, and would on fine days have her kittens with her, even when small sticks had been placed to protect the plant from her. I find that the Abbey cats are equally as fond, if they could have their own way,—for at the sight or hearing of one of the men they retreat in quick time.—*Id.*

Occurrence of the Polecat at Udimore.—Seeing two notices in the 'Zoologist' of polecats being killed, I send this notice of one, which was shot in October last, at the above place, by the gamekeeper of F. Langford, Esq.—*J. B. Ellman; Rye, March 4, 1849.*

Further Note as to Pied Stoats.—Mr. Martin, the excellent bird-preserver here, informs me that stoats do not *always* (as I asserted) become white by the beginning of March, as he has one perfectly white killed in December. In the specimens I have seen I observe the posterior quarter changes first, and the head is the last part to retain its original colour.—*Id.*

A wonderful New Animal.—"M. Antoine d'Abbadie, writing to us (the 'Athenæum') from Cairo, gives the following account of an animal new to European science, which account he received from Baron Von Muller, who had recently returned to that city from Kordofan:—'At Melpes, in Kordofan,' said the baron, 'where I stopped some time to make my collections, I met, on the 17th of April, 1848, a man who was in the habit of selling to me specimens of animals. One day he asked me if I wished also for an A'nasa, which he described thus:—It is of the size of a small donkey, has a thick body and thin bones, coarse hair, and tail like a boar. It has a long horn on its forehead, and lets it hang when alone, but erects it immediately on seeing an

enemy. It is a formidable weapon, but I do not know its exact length. The A'nasa is found not far from here (Melpes), towards the S.S.W. I have seen it often in the wild grounds, where the negroes kill it, and carry it home to make shields from its skin.—N.B. This man was well acquainted with the rhinoceros, which he distinguished under the name of Fertit from the A'nasa. On June 14 I was at Kursi, also in Kordofan, and met there a slave merchant who was not acquainted with my first informer, and gave me spontaneously the same description of the A'nasa, adding that he had killed and eaten one not long before, and that its flesh was well flavoured.' 'Herr Ruppell and M. Fresnel,' adds M. d'Abbadie, 'have already spoken of a one-horned African quadruped; and I have also some notes which tend to establish the existence of perhaps two different kinds.'—'*Athenæum*.'

[I recollect a similar story, gravely told, of the rhinoceros.—*E. Newman*.]

Occurrence of the Wild Cat in Lancashire.—A wild cat, measuring 4 feet from tail to snout, and weighing 9 lbs., was recently taken in a vermin-trap, by the gamekeeper of Joseph Bushell, Esq., of Bulk, on that gentleman's estate in Lancashire.—*Communicated by J. C. Garth*.

Notes on the Bat and Shrew.—Mr. Tomes (Zool. 2370) expresses his surprise that not more than two species of bat have been found in this neighbourhood; and I too have felt surprised at such a circumstance, since for more than twenty years I have pursued this with the same eagerness as other branches of Natural History. Glover, our county historian, enumerates only *three* species as inhabiting the whole of Derbyshire, but I have never been able to obtain from this district individuals of more than *two* species. Others have undoubtedly been described to me, and by apparently intelligent persons, but still the specimens have never been produced; and I always considered that the value of my Fauna would depend upon the amount of information which I had proved to be correct, and the number of species which I had an opportunity of examining myself. On this account, therefore, I have purposely omitted many species of animals, because, although they were killed or observed by observant persons, those persons had not made Natural History their peculiar study, and consequently were liable to be deceived. I beg to acknowledge myself much indebted to Mr. Tomes for his interesting and instructive communication upon the preservation of Mammalia; and I have no doubt that had I been versed in the method he describes, I should have succeeded in adding a new animal to the British catalogue.—*John Joseph Briggs; King's Newton, Melbourne, Derbyshire, March, 1849*.

Anecdote of Rats.—The following circumstance, communicated to me by a friend, seems so extraordinary that I think it worth recording. It occurred at Battel about a month ago. My brother's groom had set a pair of clams to catch rats, in a stable belonging to the house, and one morning he found a pair caught *together by the hind legs*. The clams were reset: in a day or two another *pair* were caught in a similar manner. Again were the clams set, and in a day or two more a third *pair* were caught as before. Had I not been well acquainted with the parties, I should almost have doubted the fact. The clams were not set in any particular *run*, but in the open space.—*J. B. Ellman; Rye, February 21, 1849*.

Occurrence of the Two-toothed Whale (Physeter bidens) at Hull.—Dr. Cogswell observes of *Physeter bidens* (Zool. 2320) that only three specimens are known, viz., one stranded in Elginshire, another at Havre, and a third at Ostend. A fourth specimen exists in the Museum of the Literary and Philosophical Society at Hull. It was stranded close by Hull, in the Humber, a few years ago, and was then thought to be a quite unknown species, and to myself and many others who examined it appeared to be perfectly toothless; and it was only when the lower jaw was denuded of flesh, in skeletonizing it, that the two teeth appeared, which had been quite covered by the gums. It was a female; and a very correct figure was drawn by Mrs. Alderson, the wife of Dr. Alderson, then residing in Hull. This was engraved on stone, and in figure perfectly resembles the one depicted in Jardine's 'Naturalist's Library,' in the volume upon whales, except that the two teeth, instead of being one on each side of the lower jaw, are both of them in the front extremity of it.—*T. Thompson; Hull, March, 1849.*

Golden Eagle (Aquila chrysaetos) near Rye.—There is a golden eagle in the marsh now, but we cannot get near him.—*J. B. Ellman: Rye, February 16, 1849.*

Occurrence of the White-tailed Eagle (Haliaeetus albicilla) in Somersetshire.—A large white-tailed eagle, measuring 7 feet from wing to wing, and weighing upwards of 9 lbs., was shot a few days ago, whilst wending its rapid flight over a wood, in the neighbourhood of High Ham, Somersetshire, by Mr. Wm. Thyer, of that place. The bird has been purchased by Edwd. Quekett, Esq., of the town, who intends giving it a place in his museum.—*Communicated by J. C. Garth.*

White-tailed Eagle at Deal.—On the 21st of February a large eagle was seen hovering over the lower sand-hills. From the description given me by a person who lives there, it was most probably the white-tailed eagle.—*J. W. Hulke; 155, Lower Street, Deal.*

Plumage of the Hobby (Falco subbuteo).—Dr. Scott expresses a doubt (Zool. 2383) as to whether a bird which he possesses is the *Falco subbuteo* or *F. rufipes*. It is unquestionably the former,—the common hobby,—the thighs of which are always deep rufous when the bird is adult; when young they are yellowish white, with oblong brown spots. The adult male *Falco rufipes* is of a uniform deep lead colour, with the thighs and under tail-coverts deep rufous.—*Henry Doubleday; Epping, March, 1849.*

Plumage of the Hobby.—Observing that Dr. Scott, of Exeter, entertains some doubt as to whether the falcon he describes is the common hobby (*Falco subbuteo*), on account of the uniform rufous colour of the thighs, which in his opinion connects it with the red-legged hobby (*F. rufipes*), I beg to acquaint that gentleman that among the various English specimens of the *F. subbuteo* in my collection, there are as many *without* as *with* the longitudinal streaks or markings of dark brown on the thighs; and it is quite clear, from the plumage generally, that those birds of both sexes which have the thighs of a pure bright rufous buff are adult, and that the others are immature. It is true that this does not correspond with the illustrative figure and description in Mr. Yarrell's most excellent work (the extraordinary truth and correctness of which, in matters of detail generally, no one has more frequently tested and

verified than myself); but I would draw Dr. Scott's attention to the fact that Mr. Yarrell does not profess to give a detailed description of the plumage of the hobby in all its stages: he merely describes the specimen figured at the head of his article, —and the bird so figured is undoubtedly one of the second year. This is evident from the lighter colour of the back of the head and of the moustache, the numerous light marks on the back, the distinct markings of the lateral tail-feathers, and the breadth of the longitudinal patches on the breast, belly and thighs. It may be replied, that I have shown nothing more than that I have birds in my cabinet resembling the one described by Dr. Scott, but that I have not proved it to be the *Falco subbuteo*,—and that, on the contrary, the figure and description of Mr. Yarrell are entirely the same as the coloured illustrations and descriptions of Lewin and Sir W. Jardine. I must therefore trespass a little further, while I adduce my authorities. M. Temminck, justly considered one of the first ornithologists of the day, states ('Manuel d'Ornithologie') that the old male hobby has the "croupion et cuisses d'un roux rougeâtre," and that in the female "le roux de croupion et des cuisses est moins vif." His coloured figure of an adult hobby ('Atlas des Oiseaux d'Europe') is a most faithful representation of nature. His description of the young birds is equally correct. Professor McGillivray, who goes into very minute details of plumage, says of the hobby ('Descriptions of the Rapacious Birds of Great Britain') that "the tibial feathers" are in the male "bright orange-red," and in the female "light yellowish red:" of the young he gives the proper markings. Mr. Mudie, in describing the hobby ('Feathered Tribes of the British Islands'), uses the words "buff orange" as the colour for the thighs: he does not describe the young. I ought perhaps to apologize for taking up so much space with so trivial a matter; but it is well known that no order of birds differ so much in plumage amongst themselves, at various ages and in various specimens, as the falcons; and we also know that a very little difference is, in the present day, considered sufficient ground for creating a new species. The hobby (*Falco subbuteo*) may be distinguished in all stages from the red-legged hobby (*F. rufipes*), by—among other differences—the colour of the claws, which in the former are uniformly black, whilst in the latter they are invariably of a very light yellowish brown. The tarsi in the latter bird are of a deep red; in the former, of a strong yellow. In *F. subbuteo* the points of the wings stretch beyond the extremity of the tail; in *F. rufipes* they do not quite reach it.—*W. F. W. Bird*; 5, *King's Row, Bedford Row, March 1, 1849.*

Occurrence of the Merlin (Falco Æsalon) at Rye.—A mature female merlin was brought me on the 6th instant, which was shot at the harbour on that day. The male has, I believe, been once taken here lately, but is much rarer than the female.—*J. B. Ellman*; *Rye, February 19, 1849.*

Varieties of the Sparrow Hawk (Accipiter Nisus).—Two beautiful varieties of the female sparrow hawk have lately come under my notice. The first was shot during the present week, at Peasemars, and is the largest I ever saw: it measures in extreme length 18½ inches—the usual length being 15 inches: it is a very dark bird, and the head and back of the neck are speckled similarly to the immature honey buzzard: this is in my possession. The other example was shot at Windmill Hill (the residence of H. M. Curteis, Esq., M.P.), and is in the full plumage of a male: a similar instance is recorded by my friend Mr. Turner (Zool. 1639). Both specimens are very old birds.—*Id.*, *March 17, 1849.*

Anecdote of a Sparrow Hawk.—A sparrow hawk (a male of the second year) per-

ceiving a canary, hung in a cage, in the dining-room of the Rev. H. Armstrong, of Whixley, about three weeks since, darted through a pane of glass in the window, and was killed—in attempting to secure his prey—by one of the inmates of the house. The bird was sent to me the day following, and now forms a part of my collection.—*James C. Garth.*

Occurrence of the Honey Buzzard (Buteo apivorus) at Udimore, Sussex.—A few days since I obtained an immature specimen of this bird, shot at the above place last autumn.—*J. B. Ellman; Rye, March 17, 1849.*

Occurrence of the Honey Buzzard near Worcester.—A specimen of the honey buzzard was shot on the 2nd of October, in Bewdley Forest, about 14 miles from Worcester. This is a splendid specimen.—*M. Curtler; Bevere House, near Worcester, January 27, 1849.*

Variety of the Tawny Owl (Strix Aluco).—A singular variety of the tawny owl has been taken at Pensax, about 12 miles from Worcester. This bird is precisely of the same size and shape as the common tawny owl, and is marked in the same manner, but all the parts of the plumage which are usually brown are of a light ashy gray colour. I have lately been informed by a gentleman, who resides within a few miles of the place where this bird was taken, that in the summer a pair of tawny owls made their nest in the hole of an old tree, and so low that any one—whilst standing on the ground—could see the old bird on the nest. The female bird laid two eggs in this nest, and in due time hatched both of them. The young birds were constantly observed by my friend, and he had noticed a great difference in the colour of their plumage,—the one being of the natural colour and the other of a very pale gray. My friend saw the latter bird about his house several times after it had left the nest.—*Id.*

Occurrence of the Great Gray Shrike (Lanius excubitor) at Heacham, Norfolk.—As the habits of this bird may not be generally known, the following may be found worthy of a place in the 'Zoologist.' A fine adult male specimen was shot by me on the 15th of January, after watching its movements for two days. I was attracted to the tree—viz. the whitethorn (*Mespilus oxyacantha*)—by its peculiar sharp cry: on my first observing it on the top of the tree, I mistook it for the gray wagtail (*Motacilla Boarula*, Linn.), from its active, irregular flight, and the constant agitation of its tail, so peculiar to the above class of birds: on nearer observation I soon perceived it differed in many respects from it. The *Lanius excubitor* is, I believe, an occasional visitant in England, between the months of November and February: it is generally a solitary bird, and feeds upon insects, as well as small birds and the smaller class of animals, which it destroys by strangulation. After having killed its prey it transfixes it upon a thorn, and then tears it in pieces with its bill, which is peculiarly adapted for this process, being strong, arched and compressed, and armed with a prominent emargination or tooth. When I shot this specimen it was in the act of destroying and eating a small bird, which it had fixed firmly to the thorn, and which it still held for some time after it was shot,—hanging from the bough with its head downwards, and only fell to the ground after the muscular action had ceased. When confined in a cage this bird evinces the same propensity for fixing its food, and if a sharp pointed stick or thorn is not left for that purpose it will invariably fasten it to the wires before commencing its repast.—(Vide Selby's 'Illustrations of British Ornithology.') Its voice is capable of variation, and possesses great powers of imitating the notes of the smaller birds, by which means it doubtless may allure them within its reach. It is

now stuffed, and in the Lynn Museum.—*I. W. Lukis; Heacham Hall, Norfolk, March 3, 1849.*

Occurrence of the Great Gray Shrike in Suffolk.—Two specimens (a male and female) of this bird have been shot near Stowmarket during the past winter; one by Mr. Worledge, of Colton,—the other by the Rev. F. W. Freeman, of that town.—*C. R. Bree; Stowmarket, March, 1849.*

Early Arrival of Fieldfares (*Turdus pilaris*).—These winter visitors appear about the beginning of October, and retire in the latter end of February or beginning of March, depending upon the season; I however have seen them as early as the 10th of September (1848), and as late as May (1848), at Waxham, near Yarmouth, Norfolk. They come over, for the most part, separately or in small companies, but retire in immense flocks. In plumage they differ much: a fine specimen of the variegated kind (nearly white) was shot at Hickling, Norfolk (1848).—*W. E. Cater; Queen's College, Cambridge, February 22, 1849.*

Supposed Early Arrival of the Fieldfare.—I firmly believe the birds seen in September (Zool. 2382), and supposed to be fieldfares, were missel thrushes: at that season of the year they are often seen in flocks of fifty or more, and are constantly mistaken for fieldfares here. The fieldfare rarely, if ever, appears till the middle of October, and the more usual time is the end of October and beginning of November.—*Henry Doubleday; Epping, March 14, 1849.*

Arrival of the Wheatear (*Sylvia Œnanthe*) *at Brighton.*—I killed a specimen of the wheatear yesterday, the 16th, close by the sea-shore, which no doubt had just arrived; but he—as the unerring messenger of Spring and true to Nature's laws—has arrived punctually to the time pointed out by the scientific observations of the ornithologist,—the middle of March,—and which in this neighbourhood is a well-known fact of the time of his arrival.—*Thomas Thornecroft; Brighton, March 17, 1849.*

Egg of Sylvia Hippolais.—I am much obliged by the several replies to my inquiry respecting the egg of Temminck's *Sylvia Hippolais*. I think it appears pretty certain that the egg is known on the Continent, and that it differs entirely from the egg of the English chiff-chaff, and also from the egg in my possession which gave rise to the present remarks. I am too well acquainted with the habits, nidification, and egg—in its many varieties—of the common wren (*Troglodytes vulgaris* of Temminck), to entertain in any way the supposition proffered by the Curator of the Norwich Museum, that the egg in question may belong to that bird. I am not so clear that it may not be a variety of the chiff-chaff's egg; but I do not believe that it is so. Not only the egg, but the nest also, differed from those usually assigned to the chiff-chaff. I think that my query, as to the probability of some other species of the Continental *Sylvias* being occasional summer visitants in the South of England, is still open for consideration; and I cannot but entertain the opinion that the eggs which I described in my former note, and which I never found except in the neighbourhood of Bristol, afford some ground for believing that such is the fact.—*W. Lean; Birmingham, 3rd mo., 1849.*

Nest and Eggs of Sylvia Hippolais.—Seeing an account of the nest and eggs of *Sylvia Hippolais* (Zool. 2387), and thinking that it throws some light on the following particulars, I am induced to send them. In the month of May, 1848, whilst I was at Canterbury, I had a nest containing three eggs brought to me, by a boy, who said he had taken it out of a kind of thicket, a few yards from a path leading through a wood. The nest was placed about two or three feet from the ground: it was very

similar to that of the lesser whitethroat, though rather smaller,—but then the eggs puzzled me not a little: they were rosy white, with a few well-defined dark brown spots on each, much resembling those of the chiff-chaff; but knowing the nest of the chiff-chaff is domed over, and constructed of different materials to the one in question, —which (as far as I can remember) was built of fine grass with a little wool intermixed,—and not knowing any other British bird to which I could assign the eggs, I put them by in despair: they are, however, in safety, although I am sorry to say the nest is lost. Do you think they can belong to the *Sylvia Hippolais*? If so, I shall consider myself not a little fortunate in obtaining them.—*Henry Benson; Trinity College, Cambridge, March 2, 1849.*

Notes on the different Species of Willow Wren.—Your correspondent Mr. Lean has an interesting and a very perspicuous paper (Zool. 2346) on the different species of willow wrens, as they are popularly called,—a group of birds about which naturalists do not even yet appear to be agreed, and with respect to which it is undoubtedly difficult to arrive at a definite and satisfactory conclusion. He is desirous, in particular, to be informed if anything certain is known as to the egg of the *Sylvia Hippolais*, or melodious willow wren, the recent appearance of the bird in Britain having created no small interest among ornithologists. I cannot give your correspondent any information on this point from my own personal observation; but perhaps the statement of the following particulars may assist him in his researches. In the summer of 1832, Professor Rennie was residing at Bonn, on the Rhine, and he there ascertained, beyond a doubt, that the *Sylvia Hippolais*, or chiff-chaff, of British authors, was in reality the *Sylvia rufo* of the ornithologists on the Continent. Previously to this discovery he had been puzzled—both in Holland and at other places on the Rhine—by the splendid song of a bird which was altogether new to him. The bird by which this song was uttered turned out, on further investigation, to be the true *Sylvia Hippolais*; and, at that period at least, it had neither been seen nor heard of in this country. Mr. Rennie, during the same season, and while still at Bonn, was fortunate enough to find a nest of this delightful songster in a lilac tree in his own garden, about seven feet from the ground. He describes the workmanship of the nest as superior to that of the blackcap (*Curruca atricapilla*), and as coming nearer in character to that of the finches. The frame-work was thick, made of dry grass, stems, sewing thread, fine wood shavings, birch bark, and small pieces of linen rag. The inside was very neatly lined with roots, hair, a few feathers, and small locks of wool. The eggs, he says, speaking generally, are of the size of those of a linnet, from four to five in number, of a bright but pale pink, with deep scarlet or crimson spots, rather large, and irregularly scattered over them. Three of the young, after leaving the nest, were secured along with the mother, and were brought alive to England. Their ultimate fate is not recorded. There is a beautiful and well-executed wood-cut given, both of the nest and of the birds themselves. With that desire for the changing of names, which seems to have been as prevalent among the cultivators of Natural History then as it is unfortunately at the present day, Mr. Rennie proposed to call this melodious warbler the ‘arbour bird,’ with the scientific name of *Philomela polyglotta*. To this proposal no attention would appear to have been paid by subsequent ornithologists. Mr. Rennie takes occasion further to say that Temminck is completely wrong in representing the melodious wren as inhabiting woods: he affirms, on the contrary, that it is rarely to be found in such situations, and that its chief haunt is in gardens: he is indeed very severe on the celebrated Dutchman. “The authority of Temminck,”

he observes, "how high soever it may be in other matters, is, with respect to habits and field observation, not of the slightest weight: he might have seen the bird, if he had ever looked beyond his cabinet, in most of the gardens about Leyden, where he resides."—('Field Naturalist's Magazine,' February, 1833, pp. 49—51). There is a work on the eggs of Germany and of the neighbouring countries, by Naumann and Buhle, which began to be published at Halle in 1818, and was continued at intervals for a good many years after: it is considered accurate, and of high authority: it was pronounced by Mr. Yarrell (Mag. Nat. Hist. ii. 205) to be the best work on the subject with which he was acquainted,—Mr. Hewitson's undoubtedly superior publication not being then in existence. On the ninth plate of this work there is, among others, a beautifully coloured representation of the egg of the true *Sylvia Hippolais*, which in appearance agrees most exactly with the description given by Professor Rennie of those which he found at Bonn. As the work of Naumann and Buhle, to which I am alluding, is in all probability rare in this country, and as the *Sylvia Hippolais* seems to be familiarly known on the Continent, I will endeavour to give the substance in English of the German description which accompanies the plate.

Name and distinctive marks of the species. *Sylvia Hippolais*, 'arbour bird,' (*gartenlaubvogel*, literally *garden foliage bird*), 'mocking bird.' A very broadish bill, lead-coloured feet, the plumage above greenish gray, below pale brimstone-colour, the posterior wing-feathers with grayish white edges. Length 6 inches, breadth $9\frac{1}{2}$ inches. Residence: in level tracts, where there are trees with deciduous leaves; banks of rivulets abounding in bushes, also in gardens. Takes its departure early, and returns late.* Food: insects, seldom berries, also ripe cherries. The neat, conspicuously appearing and very skilfully finished nest is placed in the forked branches of lower trees, and on bushes more open than usual; also on the side branches of thinner trunks of trees, and more seldom on higher and slender branches at a distance from the trunk; also in gardens, in the tops of plum and other fruit trees, or in copses 3 to 15 feet high; but not in thorns, nor in dead hedges: it is built—in a compact and durable manner—of fine stalks, withered grasses, fibres of bark having the appearance of fine tow, the finer outward peelings of the birch (where these are to be had), webs of insects and chrysalis cases,—all matted, and, as it were, glued together. Bits of cotton, hairs of animals and sewing threads are also often interwoven along with these, and the very deep inside—which has a greatly incurvated wall—is lined with fine panicles of grass, more seldom with hairs and the down of plants, and still seldom with feathers. The eggs, on account of their ground colour, can never be mistaken: they are somewhat larger than those previously described,† of a beautiful oval, smooth and tender shelled: the ground colour, when the egg is fresh laid, is a beautiful soft rose-red, but it becomes considerably paler during the time of hatching, and still more so in cabinets, where it is entirely changed into a very pale flesh-colour or reddish white: the markings are detached gray, and to a greater extent, brownish black fine little dots, and also detached larger dots—some of them blackish brown or purplish, having exactly the appearance of spots caused by flies (*fliegenklexe*); they are sparingly distributed all over the surface. The number of eggs is four or five in

* Professor Rennie says that they arrive in Germany about the beginning of May, and depart early in August.

† Those of the lesser whitethroat (*Sylvia curruca*).

one nest. Elsewhere, in their general observations on the construction of the nests of birds, these authors remark that some birds are most particular as to the materials for the exterior of their nests, and that there is always found interwoven in the very skillfully constructed nest of the *Sylvia Hippolais* a quantity of small pieces of the tender white outside of the birch; and, in places where there are no birches, these must be replaced by the chrysalis-cases of dead caterpillars, and by the webs of various insects.

In the paper by Professor Rennie, to which I have referred, he mentions that he had received from Mr. Blyth stuffed specimens of a young and an old bird, as examples of what the London dealers call the chiff-chaff (*Sylvia rufa*), but that, upon examination, they appeared to him to be of a different and an unnoticed species, greatly resembling the wood wren (*Sylvia sibilatrix*), but being of a brighter yellow. Could this be that particular one of the group of willow wrens which is represented by Mr. Lean as having been found near Bristol, and as having eggs of a globular form and of a pure milk white?—*James Smith; Manse of Monquhitter, Aberdeenshire, February 20, 1849.*

Early Arrival of the Tree Pipit (*Anthus arboreus*).—I beg to offer to your notice the arrival of the tree pipit, which I saw yesterday (March 16th) and could have shot, on the sea coast near Shoreham Harbour: it was a beautiful mild day, and the pretty little fellow was ascending and descending, in his very peculiar way, in the full height of his song. Yarrell says they arrive about the third week in April; and the occurrence of this a month earlier I thought somewhat singular, but owing no doubt to the very mild winter we have had.—*Thomas Thorncroft; Brighton, March 17, 1849.*

Arrival of the Snow Bunting (*Emberiza nivalis*).—These birds visit our Norfolk coast in winter, arriving at the latter end of November or December, according to the weather. Macgillivray mentions having seen these birds in the Western Isles September 28th, which he considers rather a novelty: however, I have shot them as early as September 27th (1848), at Waxham, near Yarmouth: the flock consisted of five—three males and two females: they were in whiter plumage than any I have ever seen.—*W. E. Cater; Queen's College, Cambridge, February 22, 1849.*

Granivorous propensity of the Sparrow.—Between the beginning and the end there is often much difference, and in some instances the mutability of the mind is as evident as the mutation of other things around us; and I do not remember being more forcibly struck with this than while reading Mr. Briggs's letter. I should certainly have made no reply had not the inquiry at the close of his letter been directed to me, which shall be answered in due time. At the beginning we find him in haste, passing over all prefatory remarks to begin at once the work of dissecting *their* communications, commencing with Mr. Hawley's, at the end of which it is said "In Mr. Duff's there is little to notice." Now here is either change of mind, or Mr. B. considers in dissecting one he has dissected both: of this I leave the readers of the 'Zoologist' to judge. It is not my intention to dissect Mr. Briggs's letter, lest—after trying to sever nerves, muscles and tendons—the instrument should fall powerless from my nerveless grasp before the work is done. I hope it is truth we want; and as facts are truths, these will answer the end best: I therefore send the following. About a quarter of a mile east of this place is a round tower, standing on the Bishop of Durham's domain, and near the park wall: it had been in a dilapidated state for many years, and in the crevices were many both starling and sparrow nests,—of the latter some scores. It was an object of interest to his present lordship; and about five or six

years ago, to prevent it falling down, he had it repaired,—every chink well pointed; and of course the colony was broken up, and the members dispersed: the next year but one the field in which it stands was sown with turnips, and when the plants came up, and escaped the ravages of the fly, they looked well, and grew as well as perhaps any other turnips for five or six weeks, when, to the astonishment of Mr. Dawson, the bailiff, every plant was entirely covered with grub: whether the caterpillars belonged only to one species or not I do not know, for at that time I did not go to see; but nine women were to be seen daily, for some time, gathering them off the plants and destroying them. Before the following spring several places in the building were re-opened, and the sparrows soon took possession of their old domiciles; and since that time there has been no more trouble or loss with caterpillars. I leave the fact to speak for itself. And, again, we have the testimonials of other eminent naturalists in favour of the sparrow, as well as those named in my last letter. The immortal Bewick pleaded their cause,* and I think if Mr. B. would read that pathetic and admirable defence he might yet be induced to stay his destructive plan. Also we find in the Horticultural Register (vol. i. page 277) the sparrows defended, and their cause well pleaded against a wholesale destroyer by poison. Many more might be given; but I shall just add a quotation from that beautiful and highly interesting trophy of Natural History, ‘The Letters of Rusticus,’ who says, after his graphic account of the nigger that infests the turnip-plant, “When we get on a little farther with our inquiries into the history of animals, especially such little things as insects, we shall be sure to find that the best way to check the increase of any kind, is to encourage any other animal, whether beast, bird, fish or insect, that makes the injurious one its prey. Providence has foreseen that the earth might at any time be desolated, or totally unpeopled, by the natural increase of many kinds of animals, and He has provided against it. The tiger-moth caterpillar nearly every year is produced in these islands in sufficient numbers to eat up every green leaf or blade of grass; to starve all our sheep, cows and horses; to deprive us of both animal and vegetable food. This caterpillar eats almost everything. Well, of all caterpillars this has the most insect-enemies or parasites; so many, indeed, that not more than one egg out of fifty thousand produces a moth: thus its voracity and its productiveness are rendered harmless.”†

Such are the wonderful scenes of production, destruction and reproduction, which are constantly going on before our eyes: we do not pretend to fathom the purposes of the Creator; we only know that myriads of beings are produced, which are intended for the food of other beings; and in order to save our crops from the ravages of those animals which are appointed by Nature to destroy them, it would seem to be our wisest plan to give as much effect as may be in our power to the universal law. Instead of grudging the small birds a little food, our gardeners (and I would add our agriculturists) should cheerfully accede it to them as allies in our task of destroying those creatures which do more mischief in a day than the others in a season. This is the proper—the only legitimate—ground on which to discuss the subject; we think that based only on the interest of man is too low; we ought never to lose sight of the wisdom manifested in the adaptation of each species in the wise and

* Bewick's ‘British Birds,’ vol. i. page 154.

† ‘Letters of Rusticus,’ page 104.

beautiful arrangement of the whole,—for man's interest is so varied that there is a danger of the entire plan being deranged, and many of our most interesting species being entirely destroyed; for what by ignorance, superstition and self-interest, there seems imminent danger: we find some destroy every magpie, jay, crow, and even starling, because they tell us they are egg-suckers; others because they are beautiful, while some are destroyed because they are unsightly; some because they are rare, others because they are too plentiful; some because they eat what man can eat, some because he eats them, and others because they eat him: this may startle some; but one day I went into the garden, where the gardener was using his spade the same way as a mason's labourer mixes his lime, and when asked what he was doing his reply was, "Well, sir, it maks ane's very bluid run cau'd to think ane's to be wurri'd wi' them varmins after ane's dead:" thus was he engaged destroying worms to the same extent, if not by the same means, as some matter-of-fact men would sparrows: thus it is that the balance of nature is destroyed when the Creator's laws are interfered with; and in a little time, if the destroying principle be carried out, from one cause or other every species may be destroyed, and not one left to sing the death-dirge of the other. What can be the reason of the onslaught, mentioned in the 'Zoologist,' against the poor harmless inoffending blindworms? They do not eat man's food, neither do they sting: I have handled them repeatedly, and a person in my employ once brought me two in his bosom; yet this and almost every other reptile is destroyed with a wantonness that ill becomes man's boasted intelligence. It brings to my mind a circumstance that occurred when once passing through a harvest-field: a beautiful large dragon-fly made its appearance in the field, when an Amazonian wench, with her stentorian lungs, called out "Nancy, stop the luggs, there's a stinging ethger;" and, suiting the action to her words, down went her sickle and both hands to her ears, which example was followed by the others; but the male gender present commenced a vigorous pursuit, and up went hats, caps, or any other missile that was at hand,—but, thanks to his wings and Argus eyes for seeing what was to do, he soon distanced his pursuers. My answer to Mr. Briggs's inquiry is, that there seems to be a difference—where he resides—from here, in birds as well as men and boys; for with us both oats and barley are bound in sheaves,—and boys, by a little after they are breeched, know the difference between a house sparrow and what they call a 'dickey-dikey:' and I can assure him that sparrows, as well as some other birds, do burrow in hay and clover-stacks, as well as corn. Having been dubbed counsellor by Mr. Peacock, perhaps that gentleman will take a counsellor's advice (it shall be without fee), and try shooting at sparrows with powder only when they are destroying his crops.—*Joseph Duff; Bishop's Auckland, March 9, 1849.*

P.S.—Since writing the above I have read the first article in that highly interesting and useful publication, 'Chambers' Edinburgh Journal,' for February, 1849, and, being forcibly struck with the sentiments contained in it, I could not resist the desire of calling the attention of the readers of the 'Zoologist' to it.—*J. Duff.*

Granivorous propensity of the Sparrow.—I have read with much interest the various papers relative to the predatory habits of the sparrow, in the 'Zoologist.' From the evidence in them adduced on both sides of the question, I think we must be led to the conclusion that the food of the defendant, certainly in some—perhaps indeed in a great—measure, consists of the property of the farmer. In taking up the defence of the sparrows (probably I shall be thought considerably impudent in attempting to mend upon those so ably offered before), I would admit not only this, but (if required)

would even go to the extent of admitting that the food of the sparrow and its young was altogether *stolen* grain. The argument I would offer for the prosecutor's consideration is, that the grain was stolen from the bird, and that he merely took his own again. Man cultivates the land for his own benefit, and totally forgets that various others of God's creatures have a life-interest in it. Why were the sparrows created? Shall man place his puny wisdom and self-interest against the forethought of the Almighty? When the Lord gave man power over the animate creation he permitted him to kill and eat of the fowls of the air, not to kill the birds in order to eat grain. I wish all would think of this a moment before they shoot the offending sparrow; perhaps they might relent.—*J. S. Webb; Huddersfield, March 20, 1849.*

Occurrence of the Fire-crested Regulus (Regulus ignicapillus) at Rye.—I have much pleasure in recording the capture of this rare British bird at this place. Having been informed by Mr. Honeysett, of this town, that the golden-crested Regulus was frequently found in his garden, I was anxious to get a few specimens; and this morning I shot a very fine specimen of the fire-crested Regulus, in company with its congener the golden-crested Regulus. It has been admirably mounted by Mr. Martin, the excellent bird-presever here.—*J. B. Ellman; Rye, March 30, 1849.*

Occurrence of the Bearded Tit (Parus biarmicus) near Tring.—On the 21st of December, 1848, a pair of these beautiful little birds, male and female, were shot in this neighbourhood. It may be proper to state that there are several large reservoirs, about a mile and a half from Tring, abounding with reeds, the favorite resort of these birds. The reeds have generally been cut every autumn; but, owing to the unusual quantity of rain which fell during the latter part of last summer, they have remained standing all the winter, which no doubt accounts in some measure for the appearance of my little friends. I am aware they are by no means uncommon in the fenny districts of Norfolk and Cambridgeshire, having frequently—during my residence at the University—had the nest and eggs brought me, with those of the sedge and reed warblers; and I have for some time thought it *possible* I might meet with them (the birds) here, but it is the first time I have had the good fortune to do so. I only observed two, which flew out of the reeds into an alder-bush, where they were shot: they were in beautiful plumage. When first killed the beak of the male was of a fine orange colour, but faded almost immediately.—*James Williams; Tring Park, Tring, Herts, April 7, 1849.*

Occurrence of the Hawfinch (Loxia coccothraustes) and Crossbill (L. curvirostra) at Rye.—In the latter part of December and beginning of January a few specimens of the hawfinch were shot, three of which came into my possession. As usual, the crossbill accompanied them, but only one was shot.—*J. B. Ellman; Rye, February 19, 1849.*

Nesting of the Linnet (Fringilla cannabina) and Nightingale (Sylvia luscinia).—A nest of the linnet was built and the first egg laid in a small box-tree, by the side of my garden-gate, on the 15th of April (1848); the fifth and last egg on the 19th. The first young was hatched on the 1st of May, or in twelve days; on the 13th, or twelve days after hatching, the brood left the nest. The song of the nightingale was first heard April 19th; its nest built and first egg laid by May 8th: it began to sit, on six eggs, May 13th; its young were hatched May 25th (on which day its song ceased): the young left the nest June 7th. From these examples, which are my own daily observation, I infer that the Sylviadæ and Fringillidæ incubate in twelve days, and that the same time is taken in fledging the young. If I have time next summer

I intend to subject some of these youngsters to a daily weighing; perhaps we shall be able to solve the problem—how many caterpillars and other larvæ it takes for conversion into a drachm of bird? a rather interesting question to the stupid people in this neighbourhood, who employ men to poison the birds on their farms.—*C. R. Bree; Stowmarket, March, 1849.*

Occurrence of the Two-barred Crossbill (Loxia bifasciata) in Suffolk.—A specimen of this bird was shot by the Rev. E. Rust, at Drinkstone, a few years ago. It was one of a small flock which were feeding on fir-cones.—*Id.*

Migration of the Common Partridge (Perdix cinerea).—On the 29th of November, 1848.—Some men, in a fishing boat off this place, saw a covey of partridges coming toward them (as if from France): one, more exhausted than the rest, fell in the boat; the rest reached the shore in safety.—*J. W. Hulke; 155, Lower Street, Deal, March, 1849.*

Inquiry respecting the Egg of the Common Fowl.—For many years I have been a keeper of fowls, and paid considerable attention to their habits and history, but I have witnessed some circumstances which I am not sufficient of an anatomist to explain. Most hens, in the habit of laying regularly for days together, will, upon their removal to another place, generally cease entirely—for some time afterwards—to lay at all. Others, laying almost daily, will, upon the appearance of more severe weather, lay a smaller number of eggs, or perhaps cease, and upon the arrival of milder weather again resume their laying. Now it appears that in both these cases the eggs must—at the time of the fowl's cessation from laying—be nearly ready for exclusion. A familiar solution of the following questions would be of considerable zoological as well as practical value. How long, under ordinary circumstances, is an egg in undergoing the process of its formation? Has the fowl the curious property of hastening or retarding the progress of its eggs through the ovarium? In how short a time before the exclusion of the egg is the shell formed? Of what materials are the shell, yelk and white formed?—*John Joseph Briggs; King's Newton, Melbourne, Derbyshire, March, 1849.*

Effect of Frost upon Fowls.—While talking to an old wild-fowl shooter the other day, a common fowl came strutting towards us in an extraordinary manner, which attracted my attention; whereupon he informed me that during a severe frost its toes were completely eaten off, which was literally the fact. Its appearance without claws, and with only half a foot, may be imagined to be rather ridiculous.—*J. B. Ellman; Rye, February 19, 1849.*

Occurrence of the Bar-tailed Godwit (Limosa rufa) in December, and the Landrail (Crex pratensis) in December and February.—I received a very fine specimen of the bar-tailed godwit in the beginning of December—a late appearance for this bird. Just before Christmas the landrail was shot near the coast, and about ten days ago another was seen by the same person near the same place.—*Id.*

Occurrence of the Great White Heron (?) in Romney Marsh.—A wild-fowl shooter yesterday informed me that during the last moon he shot at a white heron, in the marsh, while after wild-fowl; but it was so shy that he could not get near enough to kill it. He said it was as large as a common heron, and white all over. I at first thought he was mistaken, and suggested it to have been a spoonbill; but he says not, as he knows that bird well, and is positive the one he saw was a white heron.—*Id., March 5, 1849.*

The Heronry in Coley Park, Berks.—During a residence of more than four years at Reading I have had an excellent opportunity of observing the habits of the heron, from my frequent visits to the heronry, about a mile from this town, in Coley Park, the seat of John Bligh Monck, Esq. About fifteen years ago a pair of herons built their solitary nest on the top of a fine lime in the park, growing on a small island close to the Holy-brook, and not far distant from the neighbouring

“ Kennet swift, for silver eels renowned.”

There are, indeed, two of these handsome trees, standing so close together that the boughs form one large head of foliage, in which at the present time are upwards of fifty nests. The original pair of herons, having brought up their young, took their departure—with the brood—in the following autumn; but in January of the succeeding year they all returned, and during the next month they actively commenced founding the colony, which has gone on gradually increasing to the present time. Mr. Monck was so well pleased with these new visitors locating themselves in view of his mansion, that he not only ordered his servants to leave the birds unmolested, but also inserted a clause to the same effect in the lease of a neighbouring tenant. So numerous are the nests on these trees, from successive repairs and additions during each succeeding year, that many of them touch one another; and such is the quantity of sticks heaped together, that many of them are actually a yard in height. These nests remain throughout the winter; and the whole, at a distance, looks like the work of a colony of rooks. Within the last year or two the herons have constructed a few new nests on some large elms growing at a short distance off in the park, and here, too, the rooks have also built several nests; but they appear too wise to attempt any encroachment on the original heronry in the neighbouring limes. Some jackdaws, starlings and sparrows have, however, long occupied the crevices on the under part of the large nests I have attempted to describe,—and here they annually breed,—not, however, in the most perfect harmony, as might be expected in such a republic; for it is an amusing sight to witness the occasional conflicts of the rooks and these occupants of the limes, as well as the frequent struggles between the latter birds themselves. Notwithstanding the contiguity of the two branch railways to Newbury and Basingstoke, from Reading, which are now open, and run within a short distance of the heronry, the birds do not seem to be in the least disturbed by the change which has taken place in the former quietude and seclusion of this once retired spot. Indeed they are every year increasing more and more; and, what is singular, about four years ago a few emigrants from the original stock established themselves in some large beech trees about three miles distant: these trees were in the midst of an extensive wood, and what is more remarkable they are situated on a high hill, with no water nearer than the Thames, which is not within half a mile. During the breeding season, frogs and fishes appear to be the favourite food, which the old herons bring home in the pouch under the bill, in the same manner as the common rook: the young not only wait patiently for this arrival, but even abstain after the prey has been thrown up into the nest, devouring it, however, most greedily when the parent bird has left the spot in search of a fresh supply. The lime is a tree which does not come into leaf till late in the spring, so that it is a pretty and not unusual sight to see the young herons sitting on the boughs before the foliage has appeared. I have often looked under these trees for dead fish, which I am told were at one time found here; but lately I

have not succeeded in finding any remains of the prey dropped from the nests above. This, however, is readily explained; for I have observed throughout the rough grass, on the insulated piece of land on which the heronry is built, several tracks of otters (similar to those formed by badgers about their earths), which are evidently made by those animals frequenting this spot in quest of food obtained at so little cost.—*Wm. Hewett; Reading, Berks, March 12, 1849.*

Occurrence of the Common Bittern (Ardea stellaris) in Norfolk.—On the 8th of January last a remarkably fine old male specimen of the common bittern was killed on the road by the river Bure, at Tunstall, in Norfolk. The marshes in the eastern side of that county appear so well suited to the habits of this shy bird, that I should not have thought of noticing this occurrence, but that—on reference to the Catalogue of Messrs. Gurney and Fisher—I find that the bittern is, even there, getting scarce.—*W. F. W. Bird; 5, King's Row, Bedford Row, March 1, 1849.*

Departure of the Snipe (Scolopax gallinago) in 1849.—These birds left in a body on the night of the 16th of March, though a few stragglers remained a few days longer.—*J. W. Hulke; Deal, April 11, 1849.*

Inquiry respecting the Spur-winged Goose.—I trust that Mr. Ellman will excuse me if I beg leave to inquire how the spur-winged goose comes to have a provincial name in Kent, as he says it has (Zool. 2393). As far as I am at present aware, only one specimen of this bird has hitherto been met with in this country, and that in Cornwall. As your correspondent says, in the same place, that he means to devote some time to the subject of provincial names of birds, I hope he will not forget to notice this instance.—*Alfred Newton; Elveden, March 8, 1849.*

The Summer Duck (Anas sponsa) a British Bird.—I observe Mr. A. Newton, in his account of rare birds near Thetford (Zool. 2382), says the summer duck has not yet occurred in a wild state in Britain. The situation in which my bird (Zool. 2353) was shot (not more than 200 yards from the sea), and the beautiful state of the plumage, greatly favour the idea of its being wild: at all events it must have come from some distance. Is it not also a common practice of those who keep such birds to pinion them, in order to preclude all possibility of escape?—*J. W. Hulke; Deal, April, 1849.*

Occurrence of the Garganey (Anas querquedula) near Tring.—Eight of these beautiful little ducks, four males and four females, were observed by the keeper feeding on the banks of one of the reservoirs in this neighbourhood, at the end of last month: not having seen any of this species before, he imagined they were the common teal (*Anas crecca*). They remained with us several days; and on the 24th, assisted by a friend and a keeper, I succeeded in procuring seven of them, four males and three females. They were exceedingly tame, and in good plumage. I have since been informed that seven more made their appearance for a day, but moved off in the night. I must not omit to state that I tested their qualities for the table, and found them quite equal, if not superior, to any wild-fowl I had ever tasted.—*James Williams; Tring Park, Tring, Herts, April 7, 1849.*

Occurrence of the Golden-eye (Anas clangula) at Tring.—A fine male of this species, in full plumage, was shot here at the commencement of the present year. Small flocks of these birds visit us annually, arriving here at the end of October, and remaining until driven away by the frost; but being composed of females or young birds of the year, it is very difficult to meet with an old male in good plumage.—*Id.*

Occurrence of the Great Crested Grebe (Podiceps cristatus) near Reigate.—A fine

specimen was captured alive near Reigate, Surrey, by a labourer, on the 28th of February, during a very high wind, and (in the words of the man who captured it), seemed "quite taken aback, and did not know which way to go." It is a young bird, in its first year.—*F. A. Chennell; Esher, Surrey, March, 1849.*

Occurrence of the Red-necked Grebe (Podiceps rubricollis) in the Medway.—On the 6th of February last, my friend, Mr. James Moore, from his yacht, killed a red-necked grebe in Stangate Creek, near the mouth of the Medway. It was a bird of last year, and was just beginning to assume the adult plumage.—*W. F. W. Bird.*

Occurrence of Rare Gulls near Liverpool.—Two very fine specimens of *Lestris arcticus*, *Yarr.*, in mature plumage, were caught near Aintree race-course, by a farmer: they were very thin in flesh, and very much exhausted: the distance direct from the sea will be between three and four miles. I also saw the other day, at one of the stuffers' shops of this town, a very fine specimen, in the flesh, of *Larus glaucus*.—*Henry Johnson; Royal Institution, Liverpool, March 15, 1849.*

Inquiry respecting the Name of a Bird.—This day, a lady, living about a mile hence, saw on a shrub near the house two strange birds: she called her servant to look at them, but he had never seen such before. They are described to me as about the size of sparrows; the tail not remarkably long: both birds were turned towards the window: round the neck was a ring of pure white; the breast was whitish; the front of the head dark; the bill very dark or black, and shaped like that of a parrot.—*W. H. Wayne; Wenlock, Salop, February 23, 1849.*

[Can any correspondent name these birds?—*E. N.*]

Errata in Mr. Newton's Communication (Zool. 2381).—The following misprints occur in my note on the singing of birds. Under the heads of "Hedge sparrow," "Chiff-chaff," and "Ring dove," the "and" between "intervals" and "from" should be omitted; and under the head "Goldfinch," for "January" should be read "June."—*Alfred Newton; Elveden, March 8, 1849.*

Errata in Mr. Ellman's Communication (Zool. 2392).—In the sixth line from the top, for "thick-footed geese" read "pink-footed geese." The twelfth line from the top, leave out the words "and surf." Dr. Plomley informs me that neither the Egyptian goose nor brent goose is the 'crocker,' but that this name refers to the young of the white-fronted goose. I do not for one moment doubt that such is the case at Lydd and its neighbourhood, but here I am satisfied it is not. No later than Saturday, a coast guardsman, who is constantly with wild-fowl shooters, called me and said he had a 'crocker' for me: this was a brent goose.—*J. B. Ellman; Rye, March 5, 1849.*

Dates of the Arrival of Winter Visitors at Deal.

Woodcock (*Scolopax rusticola*), October 13.

Royston crow (*Corvus cornix*), October 13.

Golden-crested wren (*Sylvia Regulus*), October 13.

Redwing (*Turdus iliacus*), about October 14.

Fieldfare (*Turdus pilaris*), October 21.

Snipe (*Scolopax gallinago*), about October 21.

Mallard (*Anas boscha*), about October 30.

Snow bunting (*Emberiza nivalis*), November 4.—*J. W. Hulke.*

The Birds of Oxfordshire and its Neighbourhood.

By the Reverends ANDREW and HENRY MATTHEWS.

FROM the valuable articles which have from time to time appeared in the 'Zoologist,' a great and increasing impulse has of late been given to the study of the various branches of Natural History, and of Ornithology in particular. The lists already published from many of the maritime and remote parts of the kingdom well prove the zeal with which they have been explored.

But while such care has been bestowed upon these more favoured districts, the midland counties have hitherto received but little attention. To supply in some way this deficiency, we have been induced to draw up the following list. It contains, as far as a careful research and the experience of the last few years have enabled us to ascertain, the names of all the birds which have up to the present time been met with, either as visitors or residents, in the county of Oxford and its immediate neighbourhood.

It cannot be expected that so far inland the same interesting variety of subjects will be found, as in the localities above alluded to; but, nevertheless, its inhabitants, such as they are, seem to have acquired a more indisputable "right of settlement" than a mere visitor of our coasts from the opposite continental shores can assert; and it is on this account we trust that a list of the birds of Oxfordshire and its neighbourhood will not prove altogether useless or uninteresting.

In collecting the materials for our purpose, we have received much valuable assistance and information from Dr. Tomkins of Abingdon, H. Roundell, Esq., of Fringford, Mr. Goatley of Chipping Norton, and Mr. Kirtland of the Ashmolean Museum: where a species is inserted solely upon the authority of any one of these gentlemen, the initial letter of his name is appended to the notice, to indicate from what source our information was obtained: where no such distinction appears, the notes are for the most part the result of our own observation. To Dr. Tomkins we are much indebted for the perusal of an old manuscript list of birds, collected by the late Dr. Lamb, of Newbury, extending as far back as the latter part of the last century.

The plan we have followed in the arrangement of the species is similar to that lately published in the 'Letters of Rusticus.' In preparing a local list of birds, the classification of each species according to its residence in that district clearly offers many solid advantages over any system derived from their natural affinities: if this plan be

generally adopted, we shall soon be able to ascertain, with little or no trouble, the comparative distribution of every species throughout the kingdom. The arrival and departure of the migratory birds we have in most cases left unnoticed in the general list, but propose, at its conclusion, to give a summary of our regular visitors, both in the order of their appearance, and, as far as practicable, of their departure also: we hope, by so doing, to render our observations upon this interesting part of their economy more intelligible than they would appear if intermixed with other matter.

We have introduced no species into the list on what appeared to us doubtful authority, and for this reason we have been obliged to exclude a few whose rarity pleaded strongly in favour of their admission. Foremost among these is the collared pratincole. Of the identity of the specimen in question we have but little doubt: its appearance occurred in the following manner. In passing from this place to Oxford, in May, 1845, we observed a curious-looking bird, of the peculiar colour of the pratincole, flying along a ditch by the road-side, in the bottom of which it very soon settled; but the depth and overhanging twigs prevented our discovering in what manner the bird had alighted. On our arriving at the spot it arose again, and, flying for a few yards, again alighted. After this had been repeated several times, we betook ourselves, with all possible speed, to the nearest house, for the purpose of procuring a gun: unfortunately we were disappointed, and were with much reluctance compelled to abandon any further pursuit of this to us most interesting object. Although many times within a few yards of this bird, we were unable to see any more than its back, owing to its never having risen above the bank of the ditch along which it was flying, nor could we, from the nature of the places where it settled, discover whether it had fairly alighted on the ground or on the neighbouring twigs: still we should have no hesitation in at once pronouncing it a veritable pratincole, but for these two reasons; that it had no white mark on the rump, and that we did not perceive any forking in the tail, which, indeed, was not expanded during the time we were watching the bird: in general colour, size and shape, it agreed exactly with that species.

Another case, very similar in its circumstances to the foregoing, occurred with regard to a thrush, which, at the time, we had every reason to believe to be a specimen of White's thrush; but this we were, from the same cause, disappointed in ascertaining.

In concluding these preliminary remarks, a few words respecting the drawings which accompany them will not be out of place. As to

the hemipode, we feel that no apology will be required for presenting your readers with an accurate figure of this rare and very curious bird, and one, moreover, so peculiarly adapted to ornament a list of the feathered tribes of Oxfordshire. With regard to the grasshopper warblers somewhat more may be said. We have always felt much interest in investigating the habits of this singular species, and have been very successful in our pursuit of it: it is one of the most elegant and graceful of all the British birds, and we often observe with regret the injustice done to it by the majority of the figures already before the public: the attitude in which we have represented the male is one we have often seen it assume while running up a twig in the act of singing—if such a term be applicable to its curious ticking note: in the specimen from which our figure of the female was taken, the spots on the throat are wanting: it must not be supposed, however, that this is intended for a sexual distinction, as both males and females are not uncommonly found without them.

We cannot offer the subjoined as a perfect catalogue of the birds of Oxfordshire and its neighbourhood, but merely as a list of such as have come under our observation, in recent specimens, and of those which are fully authenticated as having been killed in the localities described; but, whenever any additional species occurs, we shall feel great pleasure in recording its appearance in subsequent numbers of the 'Zoologist.'

CLASS I.—*Residents.*

The various species comprised in this class may be met with at all seasons of the year in inland districts; in this county perhaps amounting to fifty-nine: of these there are six whose claim of residence may admit of some doubt, viz., hawfinch, siskin, lesser redpole, great spotted woodpecker, stock dove and green sandpiper; but our reasons for thus classing them will appear in the notes below.

Kestrel (*Falco tinnunculus*).
 Sparrow hawk (*Accipiter fringillarius*).
 Barn owl (*Strix flammea*).
 Tawny owl (*Ula stridula*).
 Missel thrush (*Turdus viscivorus*).
 Thrush (*Turdus musicus*).
 Blackbird (*Merula vulgaris*).
 Hedge sparrow (*Accentor modularis*).
 Robin redbreast (*Erythaca rubecula*).

Stonechat (*Saxicola rubicola*).
 Whinchat (*Saxicola rubetra*).
 Golden-crested Regulus (*Regulus auricapillus*).
 Great titmouse (*Parus major*).
 Blue titmouse (*Parus cæruleus*).
 Cole titmouse (*Parus ater*).
 Marsh titmouse (*Parus palustris*).
 Long-tailed titmouse (*Parus caudatus*).

Pied wagtail (*Motacilla alba*).
 Meadow pipit (*Anthus pratensis*).
 Skylark (*Alauda arvensis*).
 Common bunting (*Emberiza miliaria*).
 Black-headed bunting (*E. schæniclus*).
 Yellow hammer (*Emberiza citrinella*).
 Chaffinch (*Fringilla cælebs*).
 Tree sparrow (*Passer montanus*).
 House sparrow (*Passer domesticus*).
 Greenfinch (*Coccothraustes chloris*).
 Hawfinch (*Coccothraustes vulgaris*).
 Goldfinch (*Carduelis elegans*).
 Siskin (*Carduelis spinus*).
 Common linnet (*Linota cannabina*).
 Lesser redpole (*Linota linaria*).
 Bullfinch (*Pyrrhula vulgaris*).
 Starling (*Sturnus vulgaris*).
 Carrion crow (*Corvus corone*).
 Rook (*Corvus frugilegus*).
 Jackdaw (*Corvus monedula*).
 Magpie (*Pica caudata*).

Jay (*Garrulus glandarius*).
 Green woodpecker (*Picus viridis*).
 Great spotted woodpecker (*Picus major*).
 Lesser spotted woodpecker (*Picus minor*).
 Common creeper (*Certhia familiaris*).
 Wren (*Troglodytes vulgaris*).
 Nuthatch (*Sitta Europæa*).
 Kingfisher (*Alcedo Ispida*).
 Ring dove (*Columba palumbus*).
 Stock dove (*Columba ænas*).
 Common pheasant (*Phasianus colchicus*).
 Common partridge (*Perdix cinerea*).
 Peewit (*Vanellus cristatus*).
 Common heron (*Ardea cinerea*).
 Green sandpiper (*Totanus ochropus*).
 Water rail (*Rallus aquaticus*).
 Moorhen (*Gallinula chloropus*).
 Coot (*Fulica atra*).
 Mute swan (*Cygnus olor*).
 Wild duck (*Anas boschas*).
 Little grebe (*Podiceps minor*).

Kestrel (*Falco tinnunculus*). We have occasionally had five or six kestrels at the same time in the garden, with the feathers of one wing clipped: in this and in their natural state, worms and beetles—especially cockchaffers—form a great part of their food. Much delight was shown by them when they could discover a robin or a hedge sparrow in a currant-bush, covered—to preserve the fruit—with a garden-mat: on such occasions the whole pack would set upon him at once; some inside the mat, and the rest scattered over the outside, watching the apertures: as soon as the unlucky bird had been run down, which now and then happened, the good-fellowship of his pursuers vanished at once, and “detur fortiori” became the rule by which the spoil was divided. One of these birds—a male—had been allowed the whole use of his wings from the first: he remained with us for several years, and during that period never left the premises for long together: towards ourselves he never showed the least symptom of temerity or ill-temper; he would come into the house whenever he pleased, and sometimes intrude his company at very unseasonable hours: on one occasion, the windows being open, at luncheon-time, he pounced upon a hot roasted pigeon, and bore it in triumph to the roof of the house: mutton-chops and sundry other small eatables have been thus abstracted.

Of all its genus the kestrel is, we think, the least destructive to the

feathered race. We killed one, on the sea-shore near Brighton, in the act of devouring a small crab,—showing a taste for crustaceous animals, with which till then we were unacquainted.

Sparrow Hawk (*Accipiter fringillarius*). This is the most common and the most untameable species of the whole family. In February, 1843, we killed a remarkably fine pair: when alive, these birds had all the upper parts of their plumage of a beautiful slate colour,—a little darker, perhaps, than that of the hen harrier,—but within two hours after death it faded to the dusky brown usually seen. Is this change of colour after death anywhere noticed? We are inclined to think it takes place in other species of this family. In young gyrfalcons, when alive, the slate-coloured tinge is very distinct, although in preserved specimens of the same age we have never seen it.

Barn Owl (*Strix flammea*). Much has lately been written respecting the hooting of the barn owl; but as few persons can have enjoyed better opportunities of observing their habits, we beg to offer the following remarks—the result of an unbiassed inquiry into the matter. These birds not only rear their young, but constantly reside throughout the year in the tower of Weston Church, which stands within a hundred yards of the front of the parsonage-house. Scarcely a day passes without our seeing or hearing them; and often in the dead of night, perched on the roof of the stable, they favour us with a serenade of their mellifluous screech, but with no sound approaching to a hoot. We cannot positively assert that this species never hoots; but thus far we can safely say, that, with every opportunity, we never heard it; and (we say it with all deference to those who have advanced a contrary opinion) we must conceive that its character of hooting has originated in error. This may possibly be accounted for in this way: the call-note of both the white and the tawny owl is very similar; it has much the sound of “tee-whit,” the first syllable being prolonged, and the last short and loud. This call is generally repeated by the tawny owl as a prelude to hooting, and has thus, we think, confounded the two species. A pair of these owls hatched and reared a single young one of a second brood, in the latter part of the autumn of 1846: the last time we had the young bird in hand was at the end of November; he was then full-fledged, and could fly a little.

Tawny Owl (*Ulula stridula*). Is very abundant here in the woods. Our remarks on the supposed hooting of the barn owl are much strengthened by an intimate acquaintance with a bird of this species, which a few years since we reared from the nest. He was allowed his full liberty from the first, and as he grew up acquired an extraor-

dinary degree of tameness: at any hour, night or day, he would come to a whistle, and either settle on the shoulder or run along the walks by your side, from time to time pulling your clothes to attract attention. While this owl was alive, the large trees around the house were nightly the resort of many wild birds of his species, who never left us in any doubt of their vocal powers. Since the death of our favourite, the screech of the white owls remains as musical as ever, but the hooting has altogether ceased.

Thrush (*Turdus musicus*). Besides claiming our regard by the liberality of its lively song, the thrush is one of the most useful birds we have. Their destruction by gardeners is a vulgar and most pernicious error; they rarely, perhaps never, molest the fruit, while the benefit they render to the garden—by destroying snails, and other like vermin—is incalculable. The perseverance with which some of these birds will sing is really astonishing. Early in the season, about three years ago, a thrush took up his residence in this garden, and remained here all the summer: day after day, from the earliest dawn till dusk, his cheerful notes were almost incessant. One might have fancied that he allowed himself no time for anything else; indeed, he has been often seen, while on the grass-plot picking up worms, singing in the intervals with all his accustomed volubility. He soon became a great favourite with the villagers, and to this day his departure is remembered by all with regret. A bird of this species which we once had in confinement gradually became pied, till at length nearly the whole of the wings and tail was white: we have also sometimes met with pied specimens in a wild state.

Blackbird (*Merula vulgaris*). So much cannot be said in favour of this species as of the song thrush. Its full and rich—though rarely uttered—notes do not at all compensate for the sad havoc it makes in a fruit-garden. In confinement it is well known with what accuracy a blackbird will learn to whistle a tune; but on this point he is subject to much caprice: we have known several good songsters, when removed from the places where they had been brought up, refuse in future to utter a note. Pied varieties of this bird are not unusual with us.

Golden-crested Regulus (*Regulus auricapillus*). On a very cold evening in January, we once witnessed a curious and interesting scene, in which three of these beautiful little birds were the chief actors. We were standing concealed in a wood, watching for hawks, as they came to roost; a bush of oak-underwood, upon which some dry leaves were still hanging, grew within a yard of us: hearing a twittering in

this bush we looked round and saw three golden-crested wrens hopping about it: presently one of the party discovered a twig, above which two or three oak-leaves had formed a canopy, just high enough to permit of his sitting under it: on this twig he immediately hopped, and, finding it an eligible roosting-place, communicated the fact to his companions, who joined him without delay, and, side by side, pressing close together, formed one of the snuggest and most picturesque little groups imaginable.

Blue Titmouse (*Parus cæruleus*). I once shot a curious variety of this species, in which all the feathers of the wing were more or less marked with large brown spots.

Long-tailed Titmouse (*Parus caudatus*). The regularity with which this little wanderer will return to the same place to build is very curious. A pair of them, and probably the same pair, have for some years built their nest in our garden, and frequently in the same tree. We have often been amused by their vigorous efforts to twist the raw materials into the beautiful form of their nest, and, as the work proceeded, by the skill with which they fitted small pieces of lichen into a close covering on the outside. They seem by no means shy, and will allow us to watch them at their work for as long as we please. It appears rather extraordinary, that although eight or ten, or even more, are annually bred here, the number of nests in one season has never increased; one pair only having hitherto built in this spot.

Skylark (*Alauda arvensis*). At the commencement of very severe frost vast flocks of larks leave this part of the kingdom for the south; on some days, from light till dark, the air is never free from them: the multitude which must pass during that time is almost incredible. Pied larks have sometimes been killed here.

Hawfinch (*Coccothraustes vulgaris*). We feel some hesitation in classing the hawfinch as a resident, on account of its rarity in this part of the kingdom; but since its appearance has occurred at all seasons of the year, and its nest has also been found near Oxford, it does not seem properly referrible to any other class. We met with a small flock at Wytham, near Oxford, in January, 1842, and succeeded in killing a male and two females. This party was feeding on the seeds of the tulip tree.

Siskin (*Carduelis spinus*). Our remarks upon the hawfinch are also applicable to the present species: it is, however, more plentiful than that bird, and the instances of its nidification more frequent. In the winter of 1847 siskins were unusually abundant near Oxford.

Lesser Redpole (*Linota linaria*). This is again a rather doubtful

resident: it is common enough in the winter, but we have only once met with it during the breeding-season. On that occasion we found a family of full-fledged young with the parent birds. The summer plumage of an adult male is very beautiful.

Bullfinch (*Pyrrhula vulgaris*). The natural song of the bullfinch, however thrown into the shade by the deserved celebrity of the piping birds, is yet in itself possessed of no mean charms. In confinement they are very sociable, and soon become attached to any one who is in the habit of feeding them. They delight much in being noticed, and express their pleasure by strutting about the cage, throwing themselves into many grotesque attitudes, and singing at the same time a short simple air, in the low sweet tone of their better-educated brethren: this is their natural song; for we have often heard a wild bird, ignorant of our proximity, chanting the same air for his own amusement, or to exhilarate his mate during incubation.

Starling (*Sturnus vulgaris*). The power of imitation possessed by the starling is equalled by no other British bird. It is hardly possible to conceive any sound, however difficult, which his voice is incapable of attaining. A male, who for some years built his nest in the roof of our stable, possessed this talent in an eminent degree. Among others, we have often heard him imitate, with great clearness, the following heterogeneous sounds, viz., the notes of the peewit, wryneck, blackbird, jackdaw, kestrel, thrush, moorhen, coot, and partridge: his imitation of this last, perhaps the most difficult of all, was so perfect, that, when we first heard it, we looked around for some time expecting to see the covey close at hand. It appears rather odd that we have never met with a pied starling, although perfectly white specimens are not very unusual. To the agriculturist no bird is more serviceable than the starling in the destruction of his dreaded pest, the wireworm.

Rook (*Corvus frugilegus*). In deep snows, when these birds are much pressed for food, they will often assume a character greatly at variance with their usual inoffensive habits. At such seasons we have sometimes seen them endeavour, with much pertinacity, to capture the smaller birds. One day, whilst snipe-shooting, we observed a pair of rooks making a fierce attack on a missel thrush: so intently were they engaged in the pursuit, that they either did not perceive or else disregarded our approach. At length, after several stoops, they succeeded in striking their quarry, which fell on the snow: we were then so close to the scene of action that they deemed it prudent to withdraw: the thrush lay stunned and motionless for some time, but after-

wards recovered and flew away. At another time, as we were going early in the morning towards some traps baited with small birds, for hawks, a large number of rooks flew up from the spot: on arriving there, we found, in two traps, the mangled and still warm remains of rooks, who, having been caught in their endeavours to get at the sparrows with which the traps were baited, had been set upon and devoured by their own companions.

Magpie (*Pica caudata*). The sagacity and the love of mischief often exhibited by the magpie when tamed are equally surprising. We have at different times reclaimed many of these birds, and have derived much amusement from their tricks. The degree of calculation displayed in some of their actions seems to reach far beyond the bounds of instinct, and to invest them with a share of that reasoning power which the jealousy of our nature is so unwilling to allow to the inferior animals. Among the various proofs of the existence of some anomalous faculty of this kind in the magpie, which have occurred to us during a long and familiar intercourse with his species, the following anecdote will perhaps serve to illustrate these remarks, exhibiting a power certainly not comprehended in the ordinary notion of instinct. The bird whose "sayings and doings" are the subject of this story was in the habit of using as a larder, for food not immediately required, some long grass at the bottom of a row of iron hurdles. This hoard was discovered and often robbed by a favourite terrier. One morning Mag was observed in great excitement, hopping up and down the hurdles, chattering incessantly, and rapidly repeating every word in his vocabulary at the dog, who was quietly pursuing his nefarious practices. But the dog in his search had overlooked a tuft of grass in which a piece of beef was concealed. Mag was at the spot in a moment, drew forth his treasure, and securely fixed it on the highest bar of the hurdles, far above the dog's reach. He then, at a little distance, began pruning his feathers, chattering to himself with a very self-satisfied air, occasionally hopping back to take another look at his recovered meal, and apparently priding himself on his skill.

Green woodpecker (*Picus viridis*). We have frequently seen this bird busily employed in boring conical holes into ants' nests, and then securing with his tongue the insects, which—falling down the sloping sides—lay in great numbers at the bottom of the hole.

Great spotted woodpecker (*Picus major*). This is not a common species, but its nest has been found near Oxford, and the bird itself is occasionally met with throughout the year.

Wren (*Troglodytes vulgaris*). This little bird is very useful to the

gardener, in the destruction of chrysalides deposited under the sills of windows, the eaves of greenhouses, pits, &c. The care with which they will explore every crevice in the small trellis-work of a verandah, never ascending till every point has been accurately searched, has been—early in the morning—often observed here. In April, 1846, a pair of wrens built their nest in a shed which is used for potting plants: the spot selected was a very singular one. There is a beam passing under the thatch immediately over the potting-tables, and so low that it touches the head of any one standing there: upon this beam the wrens built their nest, above the table at which we were for the time daily employed; nevertheless they completed their work, and hatched and reared their young with as much confidence as they could have done in a barn. The celerity with which they constructed the nest was quite marvellous; the whole outside wall was finished in one morning between sunrise and noon: the material was procured very readily from a large heap of moss lying underneath the table. The adventures of the wren's nest did not, however, end here; for in the following summer a humble bee (*Bombus hortorum*) took possession, and colonized it with her own brood; and in the last year (1848) the bees again resumed their tenancy, but were at last forcibly ejected by a plague of moths (*Ilythia colonella*), whose larvæ destroyed their combs, and upset the whole economy of the tribe.

Stock dove (*Columba ænas*). The stock dove is occasionally seen in this neighbourhood at all seasons, and its nest has sometimes been found. "It breeds in holes of trees in Heythrop Park, and is a resident."—*G.*

Pheasant (*Phasianus colchicus*). A beautiful variety of this bird, having the usual markings of the plumage on a pale stone-coloured ground, has several times been shot in this neighbourhood. By some sportsmen this variety is called the Bohemian pheasant, and considered a distinct species.

Green Sandpiper (*Totanus ochropus*). Although not a common bird, the green sandpiper may now and then be found throughout the year in this county. On the 26th of July, 1838, we met with a family of six, four young and two old birds, by the side of a pond in this parish (Weston-on-the-Green): the young birds could fly well, and were full grown. This is the only instance in which we have seen more than one bird of this species at the same time.

Moorhen (*Gallinula chloropus*). Little notice seems to have been taken of the nocturnal flight of this bird, although there can be but few who have never heard its oft-repeated cry when on the wing,

sometimes at a considerable elevation, during the fine warm nights of summer. For a long time we attributed this note to the nightjar, until one fine evening we suddenly heard the familiar cry just above our heads, and, stooping down to obtain a clearer sight of our visitor, soon discovered him to be a moorhen. After flying once or twice round, he very opportunely alighted in a pond close at hand, where, in the clear moonlight, we had a full view of him for some minutes.

Little Grebe (*Podiceps minor*). The voracity of this bird seems to bear no proportion whatever to his powers, for many times we have found them choked by attempting to swallow fish, generally bull-heads, which have proved much too large for their throats. In all these instances they had forced the fish into their gullets beyond the gills, which in the above-named species terminate in a sharp point, and were from that cause unable to eject them. The little grebe is a very spirited bird: if caught alive, and placed in a tub of water, it will attack any object within its reach, raising itself on its toes, and inflicting very vigorous and rapid blows with its bill.

A. & H. MATTHEWS.

(To be continued).

On sewing up the Mouths of Snakes in India.—Mr. W. Atkinson inquires (Zool. 2395), whether it is a common practice for the natives in India to sew up the mouths of venomous snakes? In January, 1840, I bought of a native, in Calcutta, a small beautiful pale green snake: it lived about a month. I offered it both vegetable and animal food, but it could not eat: it drank occasionally a little water. After death I found its mouth was closely sewed up.—*W. F. Footitt; Newark, Notts, March 3, 1849.*

A strange Marine Animal, of great size and strength, was captured on the 26th of March, off Cullercoats, near Newcastle. By the enclosed handbill, which has been forwarded to me, it appears to be quite unknown to the neighbouring *savans*. The honest fishermen who drew the struggling monster to land are not, however, over-scrupulous about the name, provided it be attractive enough to extract from the pockets of "ladies and gentlemen, 6d.; working people 3d. each:" they therefore boldly announce him as "the great sea-serpent caught at last." My correspondent very judiciously observes, that, whatever the animal may be, it adds another to the many evidences constantly occurring that there *are* more things in heaven and earth than are dreamt of by the most experienced practical observers. Some thirty-five years since, the distinguished anatomist, Dr. Barclay, was fain to reproach his

contemporaries with the folly of affecting to suppose that they knew everything. What additions have five-and-thirty years not given to Science! As the animal in question must be at least a rare local visitor, may we not hope that some resident naturalist will favour us with a notice of it?

"The Great Sea-Serpent caught at last, by fourteen fishermen, off Cullercoats, on Monday last, March 26, 1849. This most wonderful monster of the deep was discovered by a crew of fishermen, about six miles from the land, who, after a severe struggle, succeeded in capturing this, the most wonderful production of the mighty deep. This monster has been visited by numbers of the gentry and scientific men of Newcastle, and all declare that nothing hitherto discovered in Natural History affords any resemblance to this. As an object of scientific inquiry, this 'great unknown' must prove a subject of peculiar interest. Many surmises as to its habits, native shores, &c., have already been made, but nothing is really known. The general opinion expressed by those that are best able to judge, is, that this is the great sea-serpent, which hitherto has only been believed to have a fabulous existence, but which recent voyagers declare they have seen. Now exhibiting, at the shop, 57, Grey Street, opposite the High Bridge. Admission: ladies and gentlemen, 6d. Working people, 3d. each."

Occurrence of the Anglesey Morris (Leptocephalus Morrisii) and Argentine (Argentina sphyæna) at Redcar.—The other afternoon (21st instant) I found, on the high water-mark between this place and the Tees mouth, a fine specimen of the Anglesey morris; length 5 inches. At the same time and place I also found a mutilated specimen of the argentine; length 1½ inch.—*T. S. Rudd; Redcar, March 23, 1849.*

Preservation of Crustacea.—In answer to the inquiries of "Scoticus," I beg to say that I have had a good deal of practice in the preserving of Crustacea; and the most simple plan, if they are small, is to treat them as you would a Coleopterous insect,—by pinning the legs in the position you want them, and placing them in a current of air to dry; but when large a very different mode must be resorted to. The plan I am mostly in the habit of practising is to leave them until they begin to smell; then, if it is a crab, I with care remove the carapace. After having scraped and washed the fleshy matter, I take my knife and make a slit in the cartilage of each joint; then from the inside I push a little cotton down through the leg: this cleans out all the fleshy matter that is likely to be disagreeable. If the specimens are moderately large, I usually insert a wire in every leg, leaving about 2 inches inside; on these ends I make a crook. I then fill the carapace with plaster of Paris, and fix the legs with their wires into it; and in a few minutes the specimen is fit to be handled with impunity. If the specimen is a lobster, I pull the tail from the carapace, and proceed as above.—*Henry Johnson; Royal Institution, Liverpool, April, 1849.*

Proceedings of the Entomological Society.

April 2.—G. R. WATERHOUSE, Esq., President, in the chair.

The following presents were announced: 'Entomologische Zeitung,' by the Entomological Society of Stettin. The 'Athenæum,' by the Editor. 'Transactions of the Literary and Philosophical Society of Liverpool,' four volumes, by that Society. A most interesting collection of insects from Adelaide, South Australia, by — Wilson, Esq., Corresponding Member of this Society. A number of British Lepidoptera, by H. T. Stainton, Esq. The thanks of the Society for these presents were voted to the respective donors.

The following gentlemen were balloted for and elected, viz., Edward Newman and S. J. Wilkinson, Esqrs., as members; James L. Michael, J. P. G. Smith, John F. Burton, and Nicholas Cooke, Esqrs., and Mrs. Vines, as subscribers.

Mr. Westwood announced that the remainder of the drawings stolen from the rooms of the Society had been found, and that he believed they would be recovered by the Society, though in a mutilated state, having been cut up to decorate an album.

Mr. Doubleday laid on the table a prospectus of a new Catalogue of the Curculionidæ, including all the species enumerated by Schönherr and those published since his work, which it was proposed to publish by subscription by M. Jekel of Paris.

Mr. Westwood read a paper by himself, on two new genera of exotic Coleoptera, illustrated by drawings of the species, viz., *Erichsonia dentifrons* and *Cossyphodes Wollastonii*. This paper was prefaced by observations on modern nomenclature, referring especially to some examples of insects named after individuals in such a manner that malice as much as esteem would appear to have been the motive of the authors in bestowing such names. He also described some new Hemipterous insects from the East Indies, and exhibited drawings thereof.

Mr. Stainton read a paper quoting an inquiry of Herr Zeller in the 'Entomologische Zeitung,' as to the *Papilio Cinxia* of Linneus, and stating that he had examined the specimen in the collection of the Linnean Society, and found it with the name "*Cinxia*," in the hand-writing of Linneus, attached. He added that it is the species known to us as *Melitæa Cinxia*, and that it is the *Delia*, *W. V.*, and *Athalia*, *Esper*.

Mr. Douglas brought for distribution some specimens of *Ægialia globosa* and *Phylan gibbus*, found by him at New Brighton, in Cheshire. He exhibited a specimen of *Necrophorus humator*, one of three found last autumn by Mr. Gregson, of Liverpool, in a bee-hive, out of which the comb, honey and bees had disappeared. It was suggested that the comb and honey had been destroyed by some other agents, and that the *Necrophori* had entered to feed on the dead bees.

Mr. Douglas stated that Mr. H. Doubleday had informed him that last year he had bred the *Phoxopteris upupana* of Hübner, a very rare species of Tortricidæ, and new to this country; and that the Tortrix, taken last season at Leith Hill, Surrey, by Mr. Benjamin Standish, was the true *Penthina sauciana* of Hübner, also a rarity.

Mr. J. F. Stephens exhibited a female *Pygæra Bucephala*, found last week at Epping, and communicated to him by Mr. H. Doubleday as a remarkable instance of the early appearance of this species, its usual time of appearance being in June.

Referring to the insects on the table from — Wilson, Esq., of Adelaide, Mr. Westwood remarked that there was a specimen of *Cerapterus Macleayi*, a species still rare, though known to and figured by Donovan many years since.

Mr. Doubleday observed that there were in this collection specimens of the Lepidopterous genus *Lynemon*, which in New Holland represents the genus *Castnia* of South America, and many very interesting Hymenoptera and Diptera.—*J. W. D.*

Note on the Interesting Habits and Economy of the Larvæ of Porrectariæ (Coleophoræ).—These insects are very easily detected in the larva state, and it is probably mainly owing to our ignorance of when and where to look for them that we have still so few species in this country. Nearly a hundred are known on the Continent, and I have no doubt that with a little perseverance and research we might increase the number of our species to considerably above fifty. There have been occasional notices of the habits of some of the species, such as Mr. Weaver's notice of the habits of *Vibicella* (Zool. 947), and several species have been bred in this country; a concolorous dark species by Mr. Edleston, and others by Mr. Bond. My attention was first directed to these larvæ by finding, in the first week of last May, a wild rose-bush, the leaves of which were spotted with large pale patches; and, on examining it for the cause, I found in most cases a grayish brown case, about half an inch in length, adhering to the underside of the leaves: these I took home with me, and kept them supplied with fresh branches of rose, till in about ten days the larvæ became full fed, and produced me several specimens of a concolorous gray insect, which is certainly not one of our named species. The larva feeds only on the parenchyma of the leaves, which it obtains by attaching the case firmly to the underside of the leaf; and then removing the lower epidermis (or perhaps adding it to the case?), it commences devouring the inner substance all round, which immediately gives the leaf a singular blotched appearance: as it continues to devour the parenchyma, it gradually protrudes more and more of its body from the case, till, ultimately, the larva may frequently be seen in the middle of the leaf completely out of its case, to which, however, on any alarm, it hurriedly retreats backwards: when it has devoured all it finds to its taste on the leaf to which it was attached, it moves case and all to a fresh leaf, and there renews the same process: when full fed, it attaches the case firmly to a leaf, or stem, or some extraneous object, the perfect insect making its escape from the opposite end of the case. *Anatipennella*, *Hbn.*, has a very peculiar case, very much in the shape of a pistol: I have found it on blackthorn. The somewhat similar *anseripennella* has a very different case, and should occur on plum, cherry, or other orchard trees. My young friend Dunning has some case-bearers which he obtained last autumn from the heads of rushes: they are doubtless *cæspititiella*, *Z.* (*leucapennella*, *St.*) Of the concolorous species I have bred several: *lutarea*, *Haw.*, *St.*, from oak and blackthorn; *coracipennella* from elms and alders, and *nigricella*, *St.*, from hawthorn. I have likewise observed the larvæ of *laricella* on larch trees in October. But I believe it is the labiate plants which should furnish us with the greatest variety of species. The exertions of Mr. Douglas and Mr. Weir have proved that the perfect insect of one species (*lineola*, *St.*) frequents *Stachys sylvatica*, and no doubt the larva also feeds on that plant. *Ballota nigra* affords food to more than one species; but, somewhat singularly, one species never attacks the plant unless growing under trees or bushes. *Lamium purpureum* likewise affords food to one or more species, and probably there are few plants but what would produce us larvæ of *Porrectaria* (or some other genus) if diligently

searched. I hope this notice will be of use in turning the attention of some Lepidopterists to this interesting group; and should they meet with any case-bearers in plenty, I should be obliged by their forwarding me living specimens, as the case is frequently of great use in determining species.—*H. T. Stainton; Mountsfield, Lewisham, March 27, 1849.*

Interesting to Bee-keepers; a Virgin Swarm.—The following unusual occurrence transpired in a small apiary belonging to me, on Saturday, May 31st, 1845. On the morning of the day mentioned above, a three years' old stock of bees threw off a large swarm, which was put into an empty straw hive, rather less than the ordinary size, and in the evening was placed on a stool in a south-western aspect; the weather subsequently being very fine and genial, and evidently suited to the fecundity of the queen bee. For two days previous to the 12th of June the usual symptoms which precede swarming were manifested; and so late as five o'clock in the afternoon of that day (a very unusual hour for swarming)—the heat very oppressive, and not a breeze stirring—the swarm alluded to threw off a virgin swarm, containing about 41 lbs. of bees, to the great astonishment of the owner and other amateurs. This seems extraordinary, considering that the bees had occupied their domicile but little more than twelve days. Mr. Robert Huish, in his 'Treatise on the Practical Management of Bees,' says, "There appears to be almost an impenetrable veil spread over the operations of these insects, and it is that very mystery which makes the study so interesting." Most certainly the occurrence above alluded to is calculated to excite interest in the minds of many persons, as naturalists and others allow a longer time for the propagation and perfection of a young queen as leader than the interval between the 31st of May and the 12th of June, and a still longer time for the perfection of drones and working-bees. The author of this note, who has had more than thirty years' practical experience amongst bees, ventures to suggest that a great many young bees were bred in the new domicile which came forth with the virgin swarm. The old stock threw off a second swarm on the 10th of June, making an increase of three hives of bees from the original stock in twelve days. All went on prosperously, and the virgin swarm was as vigorous as any in his possession. The existence and conduct of these insects in their government present phenomena which are peculiarly interesting and instructive to persons curious in the prodigies of nature; and it is curious to reflect, in reference to these surprising insects, that science has been gradually unlocking her stores, and the mists of prejudice have been dispersed by the penetrating rays of philosophy. The treasures of nature are inexhaustible, and there is certainly no department in her vast domain in which curiosity and amusement are more intimately blended than in the study of the bee.—*John Green; Melbourne, Derbyshire, April 6, 1849.*

Captures of Coleopterous Insects in light sandy situations.—The northern portion of Broadgate Park (situated about five miles from Leicester) rises into several bold rocky ridges, whose rugged slopes are slightly covered with a loose, gritty, sandy soil, supporting a light mossy-grassy vegetation, and covered here and there with chippings of the slate rocks, which generally "crop out" at their summits. It was to the examination of these hills that I paid particular attention during the whole of last year, and on their southern sides I captured the following:—

Byrrhus sericeus. Very common, under stones, from March to September.

Byrrhus fasciatus. Rare, under stones, July.

Oömorphus concolor. Rare, under stones. I took one specimen of this rare Leicestershire beetle early in March, this year.

Typhæus vulgaris, *Geotrupes vernalis* and *G. sylvatica*. Sparingly, from March to September. These three insects are generally found wandering about the broad grassy pathways of these hills; and it is to this habit, I think, we may attribute their comparative scarcity in this district, for they thus become an easy prey to the birds. I have frequently found about here fæces of birds almost wholly composed of them.

Trox sabulosus. Very rare, rabbit-skins. The specimen I have was taken early in April.

Serica brunnea. Very rare, under stones, July.

Gymnaëtron niger. Very rare, under stones on little sand hillocks, July.

Nedys ericæ. Rare, under stones, July.

Rhinonchus Castor. Very common, under stones and rambling about in cracks of the soil, March to October.

Leiosoma ovatula. Plentifully, under stones, May and June.

Otiorhynchus ovatus. Very common, under stones, March to October.

Otiorhynchus ligustici and *fissirostris* (Schön.) have been taken here by my brother, Mr. H. W. Bates, but I searched for them in vain.

Trachyphlæus tessellatus. Sparingly, under stones, March to September.

Trachyphlæus aristatus (*hispidulus*, Herbst). Sparingly, under stones, March to September. I took three specimens of this insect about the middle of March, this year.

Strophosomus obesus and *squamulatus*. Very common, under stones, March to October.

Strophosomus pilosellus. Rare, under stones, September.

Brachysomus hirsutulus. Rare, under stones, August.

Apion rumicis and *hæmatodes*. Common, under stones on little heaps of sand thrown up by the rabbits in burrowing.

Thyamis pallens. Common, under stones, &c., August.

Sarrotrium muticum. Until last year this insect had been esteemed a great rarity amongst us; in fact, only three specimens had ever been taken, although it has been well searched for: but last year I had the good fortune to meet with it in great abundance. I took upwards of 130 specimens, after two days' search; and met with it in equal abundance in March this year. It occurs under very small stones; and it is somewhat singular, but out of the great quantity I took I never met with one under a stone that reposed on the bare soil. They seem to delight to dwell about the wiry stems of the grass, and are very sluggish in their habits, appearing to be in a constant state of torpidity.

Cistela murina. Sparingly, under stones, June.

In a plantation which caps the summit of one of these hills, I took three specimens of *Coccinella ocellata*, in May, from the larch: it is far from being a common beetle in Leicestershire. *Coccinella M-nigrum* and *Otiorhynchus singularis* may be taken in great plenty from the larch and firs of this plantation; and on the dwarf poplar a friend of mine found *Melasoma populi*, in great plenty, in June last.

Besides the insects enumerated above, there also occur in great plenty on these hills a number of commoner insects, such as *Dromius foveolus*, *Olisthopus rotundatus*, *Amara tibialis*, *Bradytus apicarius* and *ferrugineus*, *Trechus fulvus*, *Notiophilus*

aquaticus and biguttatus, *Helophorus granularis*, *Prosternon holosericeus*, *Ctenicercus cupreus* and *Selatosomus æneus*. On the wood sage (*Teucrium scorodonia*), *Adimonia halensis*; and crawling on their grassy pathways, *Galeruca tanacetii* and *Timarcha coriaria*, in the wildest profusion.

The entomologists here have hitherto confined their investigations to one of these elevations; and as there are several others of a precisely similar description, we may hope, by an industrious search, to bring many valuable insects to light as yet unknown in the fauna of this district.—*Frederick Bates; King Street, Leicester, April 3, 1849.*

Partiality of Cats for Cigars.—As the pages of the ‘*Zoologist*’ have lately presented many interesting notices of the partiality of cats for *Nemophila insignis*, I am emboldened to offer a fact which lately came under my notice, and which appears to me to be no less interesting. I had placed a box of cigars upon a table, on which was seated in Grimalkin majesty a tabby cat. Happening to turn my head for a minute or two, I heard the lid of the box rattling behind me, and upon looking round to discover the cause, beheld Puss displacing the same with her nose. What next? thought I. The lid was soon pushed off upon the table, and the cat took her seat at the side of the box as contentedly as she would have done at a saucer of new milk. She then proceeded (purring all the while) to smell the contents—these appearing to be much to her satisfaction, she rubbed her head among them, and ended with licking them without the least regard as to *which end* underwent the operation. This mode of proceeding, however, was not much to my taste, however much it may have been to Pussy’s. So the box was withdrawn. In the evening I again (to make sure) put some cigars before her, and again they were subjected to the saliva operation. I do not recollect having seen in the ‘*Zoologist*’ any similar notice, and, therefore, thinking it might not be uninteresting to some of your readers, have been tempted to place this anecdote at your disposal. I may add, that on some *lighted* tobacco being placed near her she avoided it, as being probably too pungent.—*Windsor Hambrough; Earl Soham, Suffolk, April 4, 1849.*

Cat Chirurgery, &c. in Spain.—Nov. 13 (Seville). The orange groves very beautiful; gathering and packing for England were going on. Brouse (our Newfoundland dog) not quit of his cat-hunting propensities—missing him for a moment, Puss on the top of an almond-tree, intimated too truly that he was at the bottom. At Cadiz earless and tailless cats swarmed; and I was perpetually in hot water: but Brouse would not condescend to hunt these mutilated animals. In Spain the panacea for feline maladies appears to be the docking of the tail (one joint at each successive indisposition): so that you may always judge of a cat’s constitution by the state of its caudal extremity.

Feb. 22 (Malaga). Cats very noisy: emitting such sounds as none but Malaga cats (I should think) are capable of producing—said to do so always during the months of January and February, explained by their “teething.”—*Charles A. Bury; Cheshunt, Herts, April 19, 1849.*

Occurrence of the Wild Cat in Surrey.—Chalcroft once had the extraordinary luck to trap a wild cat, the rarest of British quadrupeds: not an old Tom turned poacher, as some of my readers will at once conclude, but a true, genuine wild cat.—*Letters of Rusticus, page 6.*

Capture of the Yellow-breasted Marten in Glamorganshire—Through the kindness of my friend Mr. Edward Bradley, I have this day received a very handsome male specimen of the yellow-breasted or pine marten (*Martes abietum*), which was killed in the neighbourhood of Newbridge a couple of days ago. This is the most beautiful, and, in England, the rarest of the two species or varieties of the marten. The yellow colour of the throat in this individual is particularly rich, deepening towards the cheeks. This animal has become so rare in the South of Britain, that it is very seldom indeed that an opportunity occurs of seeing it in the flesh. — *W. F. W. Bird*; 5, King's Road, Bedford Row, April 14, 1849.

Is the Polecat rare in Suffolk?—Whilst on the subject of the Mustelidæ, I cannot avoid offering a few words upon the communication of Mr. Alfred Newton (Zool. 2379). That gentleman mentions the capture of the polecat in the following terms:—"A polecat—a veritable one, and not an escaped ferret, was caught in a trap last October." This clearly infers that such an event is there of very uncommon occurrence, and as it is evident, from his frequent contributions to your pages, that Mr. Newton is an observant and intelligent naturalist, I cannot suppose he would mention the trapping of a polecat, if he did not think it worth recording. Now, the polecat or fitchet (*Mustela putorius*) is in nearly every county and district of England, the most common of all our carnivorous Mammalia; in some parts it is so numerous as to be a perfect nuisance to the farmer and preserver of game. There must, therefore, be some peculiarity in the country round Elveden, to make this animal a stranger there; and I should feel greatly obliged to Mr. Newton for an explanation of this circumstance.—*Id.*

Can the Ferret exist in England in a state of Nature?—Another expression of Mr. Newton's in the same paragraph, has also excited my attention. I allude to the words used above, "not an escaped ferret." Now, I believe I only share the general opinion, in supposing that the ferret (*Mustela furo*) cannot live in this country, except in a state of artificial warmth; and that when one is, by accident, lost in a rabbit-hole, he is sure to die of cold, or at all events, never to be seen again alive. Indeed I have always understood that in no part of Europe can the ferret be acclimatized, it being originally a native of Africa. I should be very glad to know, whether Mr. Newton is aware of any authentic instance of a ferret being seen at large, at any distance from human habitations, or of its being taken in a trap set for polecats or other vermin.—*Id.*

A White or Cream-coloured Polecat.—In the summer of last year I received from a relative in Devonshire, a large polecat, which was of a uniform light yellow or cream-colour all over. Have any of your readers ever seen a similar one? The person who stuffed it for me has had much experience, and it was quite a novelty to him. Fitchet-coloured ferrets are common, and are supposed (I know not why) to be stronger and more hardy than those of the ordinary colour; but a ferret-coloured polecat I never saw before. I do not think it is an albino. Some continental naturalists state that, in the north of Europe, the polecat turns white in winter, but this animal was sent to me in summer.—*Id.*

The Ermine taken in Worcestershire and near London.—Before I quit the Mustelidæ let me say a few words on another of the family, namely, the stoat or ermine (*M. erminea*). Many of our authors seem to think that this animal never assumes its ermine coat, with us, except in Scotland or the most northerly English counties; and Professor Bell gives a long and interesting account, by Mr. Hogg, of two ermines seen in Durham, during a period of nine years; with some speculations on the compara-

tive heights of the ground where they were respectively met with. Now I have seen several individuals of this species, caught within twenty miles of London, which were partially white, and one in particular, all white, except the head, and of course the black tip of the tail. And I have a very beautiful perfect ermine, which was killed on the estate of my friend, Mr. Moore, at Shelsley Beauchamp, in the southern part of Worcestershire, on the 10th of March, 1847. It had been repeatedly noticed for some time previous to its capture, its whiteness making it a conspicuous object in the fields and hedge-rows; and the worthy proprietor of the land kindly gave particular directions, that if it could be killed, it should be saved for me. Accordingly it found its way into my collection. The head and body are pure white, tinged with yellow on the belly and inner sides of the legs; the first half of the tail is yellow, and the extremity jet black. Many speculations have been formed to account for the fact, that, with us, a few stoats assume the ermine in cold weather, while the far greater number, in the same locality, retain their russet garb. My own opinion is, that though, in cold countries, every stoat becomes an ermine, on the approach of winter, yet that those which turn white, in our climate, are the very old ones, and those alone.

—*Id.*

Note on the Physter bidens.—Allow me to mention that your correspondent at Hull, Mr. T. Thompson, is in error regarding the supposed *Physter bidens* in the museum of that town (Zool. 2407). Mr. Thompson has given the distinctive character by which it may be pronounced to be a *Hyperoodon*, namely, two (procumbent conical) teeth concealed beneath the thickened gum at the anterior extremity of the lower jaw. In the male of the *Physter bidens* (*Delphinorhynchus micropterus*), there is a greatly compressed tooth placed in the alveolar groove at its commencement near the middle of each ramus; while in the female, several teeth of much smaller dimension, but similar in form, are arranged along the alveolar groove. A figure of the former may be seen in Mr. J. E. Gray's article on "Whales" in the zoological portion of the Antarctic Voyage, under the name of *Ziphius Sowerbei*; and of the latter in F. Cuvier's volume on the Cetacea in the 'Suites à Buffon.' I have had the good fortune to dissect two females of the *Hyperoodon*, stranded at Boness in the Firth of Forth; and Dr. Cogswell and myself saw last summer the skeleton of one in the museum of the Royal Institution of Liverpool, prepared by the obliging curator, Mr. Johnstone. An elaborate monograph of the anatomy of the *Hyperoodon* has recently been given by the great Dutch naturalist Vrolick, confirmatory of the fact previously detailed by our celebrated Hunter, whose preparations of this animal may be seen in the College of Surgeons. There is an excellent account of one stranded near Belfast by Mr. W. Thompson, the distinguished president of the Natural History and Philosophical Society of Belfast, in the 'Annals of Natural History,' about four years ago, to which I cannot, unfortunately, now refer. The supposed rudimentary baleen filaments have no existence in the *Hyperoodon*, as stated in various books; and there is in addition to the two larger teeth at the front of the jaw, a series of small ones which never advance beyond the sacular stage, and are, perhaps, absorbed in aged individuals; in young specimens, they are removed with the gum when the latter is stripped off the shallow continuous alveolar groove, as demonstrated by vertical sections, transverse or longitudinal, of the gum itself. I now throw out, as a conjecture for future inquirers,

that the mutilated skull in the British Museum, on which Mr. Gray has founded the *Hyperoodon latifrons*, is but the skull of the adult male of the common species. We require much information regarding the sexes of the whales stranded on our coasts, and I cannot refer at present to the elaborate papers on the Cetacea by the illustrious Eschricht, who may have touched on these questions. Your correspondent on the great sea-serpent question in the 'Zoologist' (Zool. 2397), tells us that Professor Goodsir regards the vertebræ of the Stronsa shark as those of the *Squalus maximus*; which is, however, merely retailing the opinion advanced by Sir E. Home and Professor Owen. No one practically acquainted with these subjects will venture to assert, or attempt to prove, that specific identity in the family of sharks can be predicated from similarity, or identity of structure, in the vertebræ alone. Such a statement might, doubtless, flow from a full belief in the Cuvierian dictum, which, however, is no longer entertained by cautious inquirers, though still employed to overload our catalogues with nominal species of extinct animals to exercise the credulity of mere geological writers or readers. Your correspondent also undervalues the practical knowledge and honesty of the Orkney observers, who are, from race and local circumstances, an intelligent and shrewd people; and I may be allowed to bear this testimony the more readily, from having spent many pleasant weeks in the Orkney Isles dredging, &c. But they need no defence from me, seeing that so many of them are well able to take up the cudgels. They have described very graphically the spiral valve of the small intestine, and the bristles pulled from the putrid fins, and Dr. Fleming has correctly referred the third pair of legs to the elaspers—a mistake which might have occurred to more initiated zoologists than the honest Orcadians. What an invaluable specimen this great sea-monster would have been in the library of the Royal Institution after the lecture on the "Nature of Limbs." How much obliged should homologists be to this stray observation of the Orkney fishermen, who, doubtless, saw further into the true nature of legs than the anatomist or "anthropotamist" of the schools, men evidently not endowed with a faculty for the reception of homologies, and who wandered in darkness until light beamed from the Hunterian chair, on the benighted intellects of councillors and lecturers. The learned Secretary of the Royal Institution should be instructed to offer a reward for the capture of Captain M'Quhæ's identical sea-serpent, for certainly it would require such irrefragable evidence to convince any but the undoubtedly profound anatomist, who listened to that learned discourse, of the accuracy, not to mention the philosophy (Okenian), of those views. Our wonder-loving cousins across the Atlantic will speedily claim the reward, and give to the anxious world of science a great vertebrated sea centipede or millepede, as the case may be.—*A. G. Melville*; 31, *Pelham Road, Brompton.*

*The Letters of Rusticus.**

[My own interest in this work prevents my mentioning it with anything approaching to praise: the publication having been undertaken at my sole charge, and every page having passed under my eye, both as editor and printer, I am too much identi-

* 'The Letters of Rusticus on the Natural History of Godalming; extracted from the Magazine of Natural History, the Entomological Magazine, and the Entomologist. London: John Van Voorst, Paternoster Row. 1849.'

fied with the production to form an impartial opinion respecting it. The transference of the following quotations to these pages will enable the readers of the 'Zoologist' to judge for themselves of the merits of Rusticus as an observer of Nature.—*E. N.]*

The Hedgehog.—"The walks about Godalming are truly delicious, whether in winter or in summer, in spring or in autumn: one can never time one's peregrinations amiss as regards season. Eshing has ever been a favourite haunt with me; its old, old bridge, and its old, old mill, are bits for painters. There is a bank close by this bridge where I made my first acquaintance with the hedgehog. My little dog, Cap—his name was once Capsicum, it afterwards shortened itself to Capsy, and finally settled in Cap—my little dog Cap, in the course of a journey of discovery on a keen, crisp, frosty day in January [Letter dated 17th January, 1835] poked his nose into a deserted rabbit-hole in this said bank at Eshing bridge. After a while, I heard from the bowels of the earth a yelping that plainly announced the discovery of some phenomenon in Natural History. The hole was very large, and the end was filled with leaves: after trying a good many contrivances that did not answer, I hit on one that did, and I hauled up a lump of dried leaves about as big as my head; outside, the leaves were loose; further in, close and tight, and after taking off layer upon layer, I felt some sharp instrument run into my hand, and I knew for certain that I had in my hand what I had often longed for, a somnolent hedgehog. I took him home, woke him up with a gentle warmth, and had the intense satisfaction of seeing him wander about a Brussels carpet, with his leafy great coat on his back, making him look for all the world like some new species of armadillo. When he had satisfied my curiosity, I had a sackful of dry leaves shot down in a corner of the cellar, and in these I let piggy take out the rest of his nap, of which, as it afterwards appeared, a term of forty-one days was then unexpired.

"Begging pardon of naturalists for such an accusation, I can't help saying that I think a great many fibs have been told about the hedgehog. In the first place the old wife's fables, about sucking cows and so forth, were so horribly unbelievable, and yet so damaging to little hoggy's reputation with the vulgar, that the more erudite and more humane became his patrons and apologists, and made much more of him than he deserves.

"Dear old White of Selborne must have been taking a nap when he told us about hoggy's liking for plantain-roots. 'The manner,' says White, 'in which hedgehogs eat the roots of the plantain in my grass walks is very curious: with their upper mandible, which is much longer than their lower, they bore under the plant, and so eat the root off upwards, leaving the tuft of leaves untouched. In this respect they are very serviceable, as they destroy a very troublesome weed.' Boy and man this passage tormented me many years, because I knew hoggy to be a blood-thirsty poacher, a regular knight-errant for attacking vipers, and a tyrant over all manner of mice and such small deer, and I thought it passing strange that he should take to cooling his copper with the roots of the old gentleman's plantains. However, the tastes of pigs and men are every now and then somewhat eccentric, so I left the matter *sub judice*, until chance solved the mystery. In a grass walk I saw some flattened plants of the common plantain withering and half dead; by the side of each I found the hole, bored, as White supposed, by the long upper mandible of the hoggy, but it was scarcely big enough to admit a lead pencil, and so round and smooth that I said directly to myself, 'tis the burrow of a night-eating caterpillar: I got a trowel, and in a

trice the fellow was unearthed, and he afterwards turned to a ghost-moth or yellow underwing, I can't say which, for both came out in one cage.

"The hedgehog is properly a nocturnal carnivorous animal; he prowls about at night, like an owl, looking after the nests of pheasants, partridges, corncrakes and larks: he kills the old ones if he can, and sucks their eggs if he can't: now and then he overruns a rabbit; but his favourite dish is a snake or an adder: he catches these while dozing under cover, and suffering from repletion caused by four or five mice lying undigested in their stomachs, tail on; and it is then that desperate fights ensue: it is then that his armour stands hoggy in good stead: the deadly adder, infuriated at feeling hoggy's teeth griping her back, lashes her head against a skin less vulnerable than that once said to have been worn by a Mr. Achilles. The pluck and power of both is tried to the utmost, but hoggy is almost sure to triumph in the end, and the adder, half devoured, is often found next morning by the countryman, who wonders 'how he come so mauled.' I take it that the spiny coat of the hedgehog is Nature's defence against the poison fangs of his favourite prey."—p. 109.

The Weasel.—"While seated on a stile there a very large rat came bustling down the hedge just before us, bringing with him a lot of loose earth: my friend was just jumping down for a stone to whirl at him, when a little bit of a weasel followed the rat down the bank, holding his head well up, like a fox-hound running breast-high. The rat had crossed the path, and got into a little, low bank on the other side of the foot-path, over which he scrambled, and came out among some swede turnips in the adjoining field, at the very moment the weasel went into the low bank hunting him. The turnips were so small, and so far apart, that we did not once lose sight of the rat. He ran in and out among them, continually crossing his own track, and then, making a little circle, he came to the bank a good way from where we sat, and, climbing over it, got into the foot-path about a hundred yards from us; he then ran towards us with all his might, straight along the middle of the path, and passed under the stile on which we were perched, motionless and smiling, like the statues of Tam o' Shanter and Souter Johnny, and about ten yards behind us he went into the thick bank, and was lost to our view. The weasel hunted well in the little, low bank, and seemed a good deal puzzled, staying there much longer than the rat; at last he seemed to find out that the game had taken to the turnips: here he pursued him with great earnestness; but, finding the trick that had been played to puzzle him, he made a cast, like a well-trained fox-hound, going completely outside all the trail: by this scheme he gained on the rat by hitting off the scent just where he had gone over the little bank the last time. In a few moments he was in the foot-path, and came galloping towards us in fine style, his back arched, his head up, and his tail in a straight line behind him. He passed under us, and in his eagerness overshot the spot where the rat had gone into the bank: it was only for a moment, he came back, quartered the ground, found the trail, and was in the bank in no time. A blackthorn overhung the path; we saw something move in it; it was the rat; the weasel was going up the stem; he was close after him; he evidently viewed him; he gained on him; the rat dropped himself into the foot-path; the weasel did the same, and followed him up the bank within a foot: we heard a shrill cry, first long, then short, shorter, then all was still; we went quietly to the place; the weasel left his prey, hissing at us like an angry cat; the brain of the rat was laid completely bare, but his little heart continued beating for nearly a minute as I held him in my hand."—p. 118.

"When I got home I sat down and made these notes for you, and as they do not

fill my paper, I will add one or two mems about the weasel, which have for a long time been standing by to be let go. The weasel is a very awkward-looking animal when running on level ground; his great length and slenderness of body, and the shortness of his legs, are very much against speed; but in climbing trees, or threading the long and narrow galleries of field-mice, this seeming disproportion is of the greatest use to him. I have seen him coursing along the boughs of a tree, winding himself round, above or below, just as suited his purpose, with all the ease and agility of a squirrel. I have watched him enter a wheat-rick at the bottom, and in less than a minute seen him peeping out under the thatch: but in mentioning this I am on dangerous ground; I fear I shall neither make you nor your readers believe that wheat-ricks are very often a complete honeycomb, with the galleries made in them by mice and rats, extending from the very crown to the faggots on which they are built; and that hundreds of these vermin are frequently found in one rick. However, where there are many rats there are few mice, and where there are many mice there are few rats; because the rats, being strongest, expel the mice. To return to the weasel: his usual habitation is the gallery of a field-mouse on whom he has served a writ of ejectment, and he usually chooses one in a bank in which the roots of bushes are tolerably plentiful and strong, as he well knows that these will effectually prevent his being dug out by any evil-disposed person or persons: he also invariably takes the precaution to select a burrow with two openings, so that, if one is besieged, he makes his exit at the other. I very well recollect seeing a weasel go into a little round hole, scarcely bigger than the hole of a wasp's nest; I immediately put my foot on it, and despatched a lad who was with me for a spade, determined to take the little fellow alive. The spade came, we dug away, cut through roots, pulled down the bank, and did no end of mischief; and, after two hours' labour, found that the hole went right through the bank, and came out on the other side.

"The weasel has an excellent nose, as I think I have pretty clearly shown above; but it is not exercised on the trail of rats only. I have, on two occasions, seen rabbits pursued by him, run down, and killed: one was on Munsted Heath, the other on Highdown Ball. In both instances, the rabbit seemed stupified or fascinated by fright; in one instance running round and round, and not taking the right precaution for escape; in the other, starting, stopping, and, as I fancied, trembling with fear. When its prey is taken, the weasel rarely eats more than the brain."—p. 120.

Sea Birds, Isle of Wight.—"We had reached the region of birds. Between the highest part and Sun Corner the cliff is more than perpendicular, it positively overhangs: here, then, is the retreat of innumerable sea-birds; here the foot of man has never trodden; here patent percussions were of no avail. The inmates were already on the move: guillemots and razor-bills, in parties of tens, twenties, and thirties, were continually dropping from their stations, and whirling on rapid wing towards the ocean; the great burgomasters, far, far above the summit, were wheeling round and round, like eagles, and uttering continually their sonorous and piercing call; while in the distance the smaller herring-gulls were collecting by hundreds about the Needles. The fishermen now pulled us right in for the cliff; and, as we approached, what a sight did we witness! Every inch of projecting rock was occupied: there were hundreds, thousands, millions of birds. I should premise, that throughout the surface of the cliff are excavated ledges, which are caused by layers of a softer substance intervening, that has crumbled, perhaps partly with frost, and partly with the operations of the tenants: these softer strata are perforated like honey-combs by the puffins.

Along these ledges the birds were crowded so thickly, as positively to push the foremost ones off by the pressure from behind, as fresh troops issued from their holes: these would fly a little way, and, returning, settle on the heads of others, and thus, by slipping in, find themselves a footing, the foremost birds being obliged to tumble off, as these intruders had previously done. Some ledges were occupied solely by puffins, whose conspicuous bills, and squat though upright position, rendered them instantly distinguishable. The little fellows turned their heads sharply on their shoulders, first on one side, then on the other, like people holding an animated conversation. They have white cheeks, with a black hood, which seems fastened under the chin with a band of the same colour. A few of the delicately white kittiwakes were perched here and there on a projecting crag; and, scattered at regular intervals, like stern, upright, solitary sentinels, stood the corvorants, spotting with black the whole surface of the cliff. There seemed little disposition on the part of any one species to consort with another: though crowded together on the cliff, yet each species kept in degree separate: willock crowded willock; puffin, puffin. A noise, as one might suppose like that of disembodied spirits in purgatory, issued from every part of the rock; whether it proceeded from the razor-bills, willocks or gulls, we could not make out; but, of all the horrid and piteous groanings I have ever heard, these were the most so. Perhaps it was only a morning hymn of thankfulness and happiness; perhaps the soft note of love; perhaps the united cry of thousands of the young for food. Being sufficiently near to see very clearly the whole mass of living creatures before us, the fishermen suggested that a single barrel should be fired at random, at the same time they both gave a tremendous shout. Words cannot describe the scene that followed: corvorants, ravens, gulls, kittiwakes, puffins, razor-bills, guillemots, all left their stations; the very surface of the cliff came towards us. The remaining barrels were soon emptied, and all was one wild uproar: the sky was positively darkened; the air filled with heterogeneous sounds: the screams, the calls, the groans of the birds;—the continued ringing of the fishermen's shouts;—the almost everlasting echo of our guns, which every crag and cranny seemed determined to reiterate; and, above all, and harmonizing all, the tumultuous roar of the restless ocean, as its long and heavy swell dashed against the perpendicular but rugged cliff;—produced such a combination of sights and sounds, as, once seen and heard, can never be forgotten.

“But where was the produce of our united discharge? Twenty or thirty birds, at least, ought to have fallen plump into the sea; for we fired right in their faces, and some of them seemed to be within ten yards of us: however, not a bird fell, nor did there appear to be a single feather touched. We stood gaping at one another in unfeigned astonishment. Was the miss to be attributed to the rolling of the boat, or the swell? Certainly not; for in such a crowd all nicety of aim would have been useless. Had we forgotten to put in the shot? Still very improbable. The fishermen explained the mystery; and I doubt not your ornithological readers have done the same: the feathers on the breasts and necks of sea-birds are so closely matted together, and form a covering so smooth and compact, that shots striking in front will not enter, but instantly glance off, without doing the slightest injury. As soon as we understood our error we were determined to rectify it, and were loading again in an instant. Now, as each little covey (for they fly in coveys, like partridges) passed over us, we took them in the rear, and to every barrel a bird fell thud into the water. This plan answered delightfully; and finding its efficacy, our spirits, which were somewhat damped by the first disappointment, now rose with the excitement of the scene; and

although, partly owing to the motion of the boat, our shots were not invariably successful, yet we soon managed to cover the greater part of the bottom of the boat with the slain.

“The birds, after the first rush, soon diminished in numbers, and in about an hour became so thin as scarcely to afford us the chance of a shot; so we proceeded on our way past Sun Corner, and found that between this point and the Needles a whole colony of corvorants had established themselves: the old hens were visible by dozens sitting upon their nests. Precisely under the spot where the corvorants were sitting was a narrow slip of beach. On this we landed with great difficulty, as the swell of the sea continued very heavy, and the bottom is here very bad; and, being almost perpendicularly under the birds, we could plainly see their long necks and stiff still heads poked out to seaward: so we spent much time, swan-shot, bullets, and excellent powder; and finding that they did not move their heads one inch to the right or left, we got into our boat, and floated onward with the tide towards the Needles; resolving, however, to try the effect of shots from above, as it was very clear they took no effect from below. To accomplish this, we had to pass through the Needles, and land in Alum Bay, whence there is a decent foot-path up the cliff, and across to the top of that other cliff, on the ledges of which the old hen corvorants were so sedately planning for the welfare of their future progeny; in fact, where they were reckoning their chickens before they were hatched. The water had gone down about three hours, and the passage through the Needles was a ticklish affair. The gap which we were about to attempt was little wider than our boat, and had a constant current running rapidly at ebb tide towards Alum Bay. The depth varied as each successive swell rolled in from the ocean, from 1 foot to 20 feet, and at low water was left quite dry. Two of us knew something of old ocean and old ocean's ways; and though we were ignorant of this particular spot, we learned sufficient from the fishermen to know the thing was to be done. Off went the coats; two men to each oar: we held our craft steadily against the current, which was tremendously strong, and kept her head right for the opening. An enormous swell rolled seaward, leaving us almost aground: rattle, rattle, and thump, thump, we heard the stones and fragments of rock beneath us; it seemed an hour running out: at last another came: “Here she comes again! keep her head right, and stand by!”—up, up, we rose. “One stroke, up oars, let her drive!”—and through we went, in gallant style, on the very crest of the swell.

“On the Alum-Bay side of the Needles there was no swell to be felt; but the meeting of opposing tides and currents, the influence of the winds, and the rough rocky bottom, keep the water in a sort of perpetual boil. As we approached the shore, we had to pass over a good many lobster-pots, which we took the liberty of examining, and found, among other contents, a great many soldier crabs, which had established themselves in the shells of the common whelks: we did not rob the poor people of their lobsters, but carried off the soldiers and a few species of crabs which could only be useful to a naturalist. The geology of Alum Bay must be very interesting; the cliff above it presents all the colours imaginable. The poor people in the neighbourhood get sands from it of a dozen different colours; and, running them into a phial, make each colour form a distinct ring, which has a very pretty effect: these phials, so filled, they sell for a shilling each.

“We ascended the cliff, examined the lighthouse, purchased a variety of eggs, and crossed the hill to the corvorant colony: then, by lying down on our bellies on

the turf, we quietly peeped over the edge of the cliff, and obtained an excellent view of the amiable company, from which a stench arose almost enough to suffocate us. There were young ones of all sizes,—some almost ready to fly, some only covered with down; some nests had one or two eggs, which are very small in proportion to the size of the bird, and of a dirty white colour: many hens were sitting, and here and there a solitary old cock (the crested corvorant of Bewick) was perched on his triple support of tail and feet, contemplating the expanse of ocean as motionless as a statue. One of the party now determined on the hazardous experiment of leaning over the cliff and shooting them as they sat; the other two remonstrated, but to no purpose: so a line was formed; the first held tight the coat-tails of the shooter, the others locked hand in hand; thus making a dead weight of four against one, in case of any propensity on the part of the first to lose his balance. Thus arranged, the adventurer shouldered his double-barrelled, and, actually bending over the cliff, he pulled the trigger. An old corvorant fell five hundred feet down the cliff, upon the little narrow beach before mentioned; another trigger was pulled, and down went another corvorant. The shooter then exchanged guns with him who held him by the coat-tails, and with each barrel of this he also sent a corvorant to the bottom; so there were four, as we supposed, quietly waiting our return. Emboldened by this success, we proceeded more than a mile along the top of the cliff, continually peeping over. We discovered two nests of a gull (perhaps the herring-gull), each with three eggs, of an olive-brown colour, with darker spots: the nests are made of dried grass and fern. The fishermen told us that these gulls will lay three eggs again, if the first three are taken, and three more when the second three are taken, but no more than this, nine being the whole stock for one year. But the greatest curiosity we observed was the nestless and solitary egg of the guillemot, balanced, as if by a geometrician, on the bare rock, and looking as though the least puff of wind would blow it off its station into the sea. We learned from the fishermen, and some boys of the neighbourhood, that the puffins never expose their eggs, like the corvorants, razor-bills, guillemots and gulls, but lay them at the end of long holes, which they hollow out of the softer parts of the rock. We bought a few of these eggs to bring home; they were dirty white, with darker spots.

“Along the circuitous edge of this cliff the egg-collectors plant the iron crow-bars for attaching the ropes by means of which they descend. Two ropes are commonly used; one goes round the body, and the other is held in the hand: the first is warped round the crow-bar, so as to be let out at pleasure; the second is fixed to it by a noose, and when the suspended sportsman wishes to reascend, he shakes this second rope as a signal, and two men on the top of the cliff begin hauling at the first, or waist-rope, while he assists the operation by climbing up the second, hand over hand. The crow-bar is rarely stuck so deep as eight inches in the ground, so that at every movement of the collector it may be seen to give most fearfully; but impunity creates valour, and as no ill has yet resulted from this careless mode of planting the bar, they seem to fear none. At some parts of the face of the cliff are shelving ledges of the most slippery turf, and when arrived at these, the collector throws off his waist-rope, and walks or clambers along for fifty or a hundred feet, and sometimes even more. This, though less striking to a stranger than the act of dangling from a rope, after the fashion of a spider from his thread, is in fact the most dangerous feat of all, for the slightest slip is fatal. Another constant source of danger is the detaching of small pieces of rock or loose stones, by the friction of the rope against the cliff: to avoid

these, the cliff-man has to keep an incessant look-out, and to bob his head this way and that, to escape a broken scone.

“The guillemot, or ‘willock,’ as it is here called, sits with its egg under its wing, or pressed to one side of its breast, and always on the same side, so that a mark on the breast of the bird plainly shows the situation of the egg whilst she is sitting. After the day when the egg is laid, it is very rarely left, and it is only for this one day that the collectors have much chance of getting it. They tell you that when the bird has once begun sitting, she will never suffer herself to be robbed; but that when all chance of saving the egg is gone, she rolls it off the ledge and flies away. This story is partly true, but there is some doubt whether she acts on the true dog-in-the-manger system of smashing her egg because no one else shall have it: its position is so ticklish, that when the bird is forced to take flight to avoid capture, she may very easily upset her charge and pitch it over the precipice, in the mere flurry attendant on the act of self-preservation.

“Man is not the only robber this poor bird has to fear: the gulls and ravens are ever on the alert to secure her eggs. This is horrid unkind of neighbours, but perhaps not inconsistent with our own practice. The gulls are for ever scanning the face of the cliff, hoping to catch a glimpse of an unprotected egg. Directly a gull has found one, he charges point blank at its small end, using his beak as a lance: the huge egg, thus pierced, sticks on his beak, and he flies away as though he was carrying a great pear in front of his head: in this way he sucks out all the goodness while on the wing, and drops the shell when empty. These shells, with a great hole at one end, may often be found upon the downs above, and naturalists profoundly assert that stoats and weasels are the aggressors; thus assigning to those lithesome quadrupeds a marvellous extent of cliff-scaling capability.

“The raven has no less taste for willock’s eggs than the gull, but his manœuvres are somewhat different: he never pierces the egg, but seizes it suddenly and darts off to the top of the cliff, amid the uproar of the colony. While on the look-out, he traverses silently and slowly the face of the cliff, making little circles, and returning again and again to the same hunting-ground; but the moment he spies an unprotected egg, he darts in, seizes it,—I suppose with his feet,—and makes off like an arrow to the summit, there to enjoy his meal at leisure. You may mark him down, and then by vociferous shouting and running to the place, make him leave his booty, which is always sound and whole.

“The peregrine falcon has had her eyrie here from time immemorial; and these noble birds are often to be seen soaring about the cliff, the terror of jackdaws, whose young at this season constitute their favourite prey, or perhaps the favourite food of their own young. The fishermen told me that this falcon always breeds here, and that it is constantly following the kestrels, which abound all along the cliff, as if to drive them away from his territory.

“After having satisfied our curiosity here, we returned to our boat, and crossing Alum Bay we again passed through the Needles, and pulled in for the beach at Sun Corner, where the corvorants had fallen. Three were quite dead, the fourth had got into the water and was swimming about in style. We chased him more than an hour, firing at him about forty times, but to no purpose, as he dived the instant the trigger was pulled: at last we very reluctantly gave up the pursuit as hopeless, the wind having freshened, and made the swell rather too heavy for an open boat; the tide, too, was quite out, and the rocky bottom occasionally peeped up all round us in

the hollows of the sea, looking very black and disagreeable. Two of us took a spell at the oar, by turns, with the fishermen, and worked away like Britons, till a noble swell laid us high and dry on the shingles at Freshwater."—p. 35.

Extract from the Rev. C. A. Bury's Diary.—I have an idle half-hour, and as reference to Mr. Wolley's trip down the Guadalquivir has led to my taking out of its drawer my 'Spanish Journal,' I will copy an extract or two.

"Sunday, Oct. 25, 1846. On the passage from Lisbon to Cadiz,—'a whale seen.'

"Gibraltar, Oct. 31. Our Newfoundland dog (alas! now no more) has become quite at home, made innumerable quadruped acquaintances in the sheets, and a sufficient number of biped friends in the kitchen. On board the 'Madrid' he was popular with all but the head steward, whose attempts to keep him from coming down into our cabin he generally contrived to evade. On one occasion, not obtaining admission, he made his way to the omnibus (so called because therein were stowed, in small space, eight gentlemen). Here he was accosted by the veteran soldier—"Holloa, old fellow, no room for you here!" whereupon he again made his way to our door, and set all the servants who tried to arouse him at defiance.

"The growth of vegetation on 'the Rock' is wonderfully rapid after rain. The fences are formed of the large aloë. One or two species of Cactus abound. The most elegant tree is the black pepper tree: the castor oil tree thrives well. The birds observed are the herring gull, purple sandpiper (numerous), Kentish plover, common sandpiper, coot, little grebe, blackbird, skylark, black redstart, gray and white wag-tails, house sparrow, willow warbler, a species of chat not British, and a warbler nearly resembling the Dartford warbler.

"Cadiz, Nov. 10. In the market this morning observed sparrow hawk, great shrike, hawfinch, blackbird, thrush, common bunting, starling, red-legged partridge, quail, wigeon, black-tailed godwit: on the rocks yesterday, turnstone, ring plover, gray and pied wagtails, titlark, linnet, robin, black redstart.

"Nov. 12. Embarked at 7 A. M. on board the 'Rapido' for Seville. Passage as far as San Lucar rather rough. . . . After entering the Guadalquivir and getting some breakfast, all better. Banks very uninteresting but for the birds, which abounded. Among them the stately bustard, of which we saw considerable numbers; wild ducks and geese and wigeon swarmed. Twenty-three or twenty-four species were counted during our ascent. Among them, peregrine falcon, kite, moor buzzard in great plenty, sparrow hawk, raven, short-eared owl, vulture (*Neophron*?), spoonbill (only one), heron, bean goose, pink-footed goose (?), wild duck, wigeon, teal, golden plover, gray plover, lapwing, curlew, little bustard, squacco heron (?)."—*C. A. Bury*.

Mode of destroying Moths in Birds' Skins.—Some five or six years ago a gentleman sent me a golden eagle, shot in Norway: the bird was not dead, but winged only; and although every attention was paid to it, yet at the end of about ten months it expired. The bird was mounted; but not being much more than a year old, and consequently not perfect in plumage, I did not case it, hoping at some future time to obtain a better specimen. About two years ago I was sorry to find my bird very much mothed, and on examination found it in several parts covered with ova. Now, to plunge a golden eagle in a bath of prepared corrosive sublimate is no joke, at the

price we have to buy it. I therefore thought of trying heat, which I am glad to say has fully answered the purpose. The plan adopted was to take out the wires and the whole of the stuffing,—to wrap the skin in a coarse cloth, which was laid on a board, and placed in the oven of a common bakehouse for about six or seven minutes, the heat being about 208 degrees. Since then I have never seen any signs of life, either from pupa or ova.—*Joseph Duff; Bishop's Auckland, May 7, 1849.*

[I believe that heat is an effectual *temporary* cure for the moth in bird-skins, but I have not found it a preventive.—*E. Newman.*]

Collecting of Birds' Eggs.—I cannot but think that the present rage for collecting eggs, both amongst the scientific and non-scientific, must have a powerful influence in rendering our rarer species of birds still rarer, and so in some degree curtail the pleasures of the study of ornithology,—since much of the pleasure resulting from that pursuit lies in studying birds in their native habitats, and marking their peculiarities and manners. Nothing else can indeed make us acquainted with the true characteristics of any object of nature but such kind of observation. We may admire the race of falcons in a museum or in a zoological garden; but the person who has only seen these birds in such condition will have a very poor conception of their real character compared with him who has seen them on their native wilds,—seen their daring dash, their power of wing and activity of momentum when in pursuit of their prey. I know that dealers of eggs now give boys general orders to bring them all the eggs they can find, and the rarer the kinds of eggs are of course they pay the better for them, so that there can be no doubt, if this rage continues much longer, many of our species must become very rare indeed, if not extinct. I cannot but think, also, that robbing the bird of its eggs is inflicting the greatest possible misery upon it which it can suffer; for its chief pleasure—indeed the greatest object of its existence—appears to be the propagation of its species. It is at the period of nesting when the song of birds delights us most,—when, in fact, their measure of joy is so full that they must give expression to it in their notes of gladness, which Lord Byron has classed amongst the “sweets” of Nature. How great their suffering, then, when their treasure is gone, who can say! Their melancholy note after such a loss, and their expressions of alarm at our approach to their nest, may well assure every egg-collector that his treasures must have produced many an aching heart and anxious breast ere he could become possessed of them. The knavery, too, which is practiced by dealers, ought to make collectors feel very little confidence in the truth of their specimens, and more especially of their most valued kinds. St. John's ‘Tour in Sutherland’ may give them information on this subject.—*W. R. Scott, M.D.; St. Leonard's, Exeter, May 4, 1849.*

Note on the Griffon Vulture (Vultur fulvus).—I believe Mr. Wolley is correct in supposing the bird he saw on the banks of the Guadalquivir to have been *Vultur fulvus*. I did not see this bird in Spain, but made its acquaintance some years ago in the East. Mr. Wolley's description, and that of a friend who saw it at San Lucar, satisfy me as to its species. I allude to the subject chiefly in order to point out the fact of this vulture, like the neophron, being migratory. When we descended the Guadalquivir, February 1st, no vulture was to be seen (and I kept a pretty sharp look-out for all that was ornithological). In March, my friend, while staying at San Lucar, very nearly succeeded in knocking down with a stick one of these huge fellows who had over-eaten himself,—a temptation, by the way, to which a featherless biped, in the shape of an Englishman, is little exposed in Spain. I heard of this large vulture both at Gibraltar and at Malaga, but saw it not; and therefore made no allusion

to it in my notes sent to the 'Zoologist.' I was much amused at tracking our *migratory* friend, Mr. Wolley, in Spain: there was his name in the visitors' book at Fonda de la Reyna, Sevilla; then, again, was it to be seen at the worthy Mrs. Cowison's, Rogers Ramp, Gibraltar; and, if I remember aright, at Senora Romagnoli's, Malaga, also,—or at Granada. The modern Athens seems to be his favourite habitat just now; and, I think, since his Spanish wanderings, we heard of his attaining the summit of Mont Blanc. Be he where he may, however, I am sure your readers are always pleased to see his name and address in the 'Zoologist.'—*C. A. Bury; Cheshunt, Herts, May, 1849.*

Occurrence of the Osprey (Falco Haliaeetus) near Bishop's Auckland.—Last week a very fine osprey was taken in a trap at Windlestone Hall, the seat of Sir Wm. Eden, Bart., about three miles from here. It has been presented to the Durham Museum.—*J. Duff; Bishop's Auckland, May 7, 1849.*

Audacity of the Sparrow Hawk (Accipiter nisus) in attacking Crows.—I send an extract from the 'Hereford Times' of April 7th. "An instance of the ferocity and daring courage of this feathered marauder occurred near Cenfpare, on the old road to Trecastle, a few days ago. A fine crow was at rest on the branch of a tree, basking in the sunshine, and no doubt feeling himself quite comfortable and secure, when he was suddenly assailed by a sparrow hawk, who swooped down upon him with great fierceness. A struggle ensued between the diminutive assailant and his gigantic intended victim, which resulted in both birds falling into a pool of water; whereupon a spectator rushed forward and captured them, still engaged in conflict,—indeed so fast was the beak of the hawk affixed at the back of the crow's head, that much difficulty was found in separating the combatants. Both birds are now living in captivity." Singular enough, on reading this paragraph to my friend, Mr. Moore, he tells me that he saw a very similar occurrence on Friday, April 13th. He was walking with his brother, in a wood at Shelsley, Worcestershire, when they saw a crow (*Corvus corone*) skulking through an opening in the trees. A little sparrow hawk pounced down upon him from above; but after a struggle the crow extricated himself, and took refuge in the upper branch of a tree.—*W. F. W. Bird.*

Occurrence of the Rough-legged Buzzard (Buteo lagopus) in Norfolk.—A specimen of the rough-legged buzzard was trapped at Mantley, in Norfolk, in the early part of last December.—*T. H. Burroughes; Harrow-on-the-Hill.*

The Great Eagle Owl (Otus Bubo) Nesting in Confinement.—Mr. Edward Fountaine, of this parish, has a pair of the great eagle owl in confinement; and the hen bird is now incubating three eggs, on a nest formed of straw, on the ground, in the further corner of the cage: both birds have become unusually bold and savage since this operation has been in progress.—*John Henry Gurney; Easton, near Norwich, May 1, 1849.*

Occurrence of the Great Gray Shrike (Lanius Excubitor) near York.—A very fine specimen of the great gray shrike was shot by a tailor, close to the city of York, on Clifton Strays, on Wednesday, April 18th, while chasing some fieldfares,—a fine adult female, having five very distinct eggs in her.—*W. M. E. Milner; Nunappleton, Tadcaster, April, 1849.*

Occurrence of the Great Gray Shrike near Lewes.—A fine specimen of the great gray shrike was caught on the 3rd of February, at Stoneham, near Lewes, by a bird-catcher, whilst attempting to carry off one of his "call-birds:" it at first attracted his attention by pursuing a sparrow down a hedge-row: he immediately placed his

net near the spot, and in a few minutes the bird was his prisoner. It is now in the possession of a gentleman in the neighbourhood.—*W. C. Unwin; St. Ann's, Lewes, February 19, 1849.*

An Extraordinary Nest of the Song Thrush (Turdus musicus).—When looking for a moth (*Nyssia zonaria*), at New Brighton, on the 11th instant, I found the strangest thrush's nest I ever saw or heard of. It was placed near the top of a ridge of sand, some of which the wind had blown away, so as to leave a ledge of matted roots, &c., which overhung and sheltered the nest from the weather. It was composed of a few bits and roots of star-grass, stuck into the sand, and woven together in front, about an inch and a half in height; but at the back there were not more than half-a-dozen bits of roots. The eggs—three in number, and quite fresh—were laid on the bare sand: there was no lining whatever. I have known the thrush build on the ground before, but then the nest was lined in the usual way.—*Nicholas Cooke; Warrington, April 19, 1849.*

Cream-coloured Variety of the Song Thrush.—In November last, Harris, a bird-stuffer in this town, when out looking for small birds, shot a beautiful cream-coloured variety of the song thrush, at Old Malling. Is not this of rather rare occurrence with this species? It is frequently seen in the house sparrow, skylark and common bunting.—*W. C. Unwin; St. Ann's, Lewes, February 19, 1849.*

Supposed Variety of the Hedge Sparrow (Sylvia modularis).—A very curious specimen, supposed to be a variety of the hedge sparrow, was shot a few miles from here not long since. It is a pale fawn colour all over: it does not to me appear at all like a hedge sparrow, being altogether more slender; but it is pronounced by competent authority to be that bird.—*J. B. Ellman; Rye, April 17, 1849.*

Curious Nesting-place of Robins.—A pair of robins have built their nest behind a figure on the top of a small monument, in Thorpe church. There are now young ones in the nest; and the male bird—without any fear—brings them worms every now and then, even during divine service: a small broken pane of glass affords him an easy entrance. Two other instances have also come under my notice this year. One, where a pair have built their nest in a school-room, in which a continual bustle is going on all day; and the other, in the bed-room of a gentleman's house: the window is left open during the day, to enable the birds to obtain food for their progeny.—*Peter E. Hansell; Thorpe, May 7, 1849.*

Description of the Eggs and Nest of a British Sylvia.—That there is a British Sylvia besides the species already described is made pretty evident by the following facts, corroborating as they do the remarks of your late correspondents, Messrs. Lean and Benson. Last week, when searching in a coppice near this place for nests of the Sylviadæ, I found one in a wild rose-bush, having three rosy white, unspotted and nearly globular eggs in it, and placed about a foot and a half from the ground: the bird, which was on at the time, darted off so suddenly as to prevent my noting its appearance. From the number of the eggs I judged the bird had not finished laying, and therefore brought one of them away with me, as I have frequently done with impunity with the other Sylviadæ; but to my great disappointment, on visiting it again two or three days afterwards, I found it had been forsaken. I must, therefore, content myself at present with the nest and eggs only, which I will proceed to describe. *Nest.*—Made of the dried stems of small plants, finer in the inside, mixed with a little wool, and lined with long black horse-hair; in short, very like that of the whitethroat, but thicker; the cavity two inches in diameter, and an inch and a half in depth.

Eggs.—Long diameter $\frac{8}{12}$ ths of an inch; transverse diameter $\frac{7}{12}$ ths. On attempting to blow one of them it was found to be far advanced in incubation, the embryo being too large to admit of its passing out. From this circumstance it is probable this species lays but three eggs,—the number found in the nest mentioned by Mr. Benson.—*John N. Beadles; Broadway, Worcestershire, May 8, 1849.*

Occurrence of the Cirl Bunting (Emberiza cirlus) at Rye.—I shot a very fine male specimen of this bird last week, from a thorn. I am not aware of its having been noticed more than twice in this district, and I cannot find any one who knows the bird.—*J. B. Ellman; Rye, April 17, 1849.*

Singular Anecdote of a Canary.—I fancy I have discovered rather a curious fact with regard to a pet canary in my possession. I find that though, when asleep, he is readily roused by being brought to the light of a candle, or by any movement which disturbs his equilibrium on his perch, no noise I have yet been able to make has been sufficient to interrupt his sleep. I have talked, bawled, whistled, clapped my hands, and sounded even the loudest and most braying notes of a cornopean close to him, without producing apparently the slightest effect. When awake, however, he takes notice of every noise that is made. Can any of your readers account for this, or tell me whether it is peculiar to my individual or the species? Will those who possess caged birds be kind enough to make the experiment for themselves, and forward the result to the 'Zoologist'?—*W. S. Lewis; Ripon, Yorkshire, April 17, 1849.*

Change of Colour in the Bullfinch.—I find, from inquiry of two bird-fanciers in this place, that they both have had bullfinches whose plumage has changed to black; and they attribute it to the birds having been fed on hemp-seed, though it was partially mixed with canary seed; but in both instances in less time than four years, as mentioned by White,—one at the second time of moulting, and the other at the third.—*Joseph Duff; Bishop's Auckland, May, 1849.*

Frequent occurrence of the Hawfinch (Loxia coccothraustes) at Rye.—This bird has been almost common since Christmas in this neighbourhood, and last week eight were seen together. Several have been shot; and from the late appearance I incline to think that they are going to nest with us. I know an instance of a nest with five eggs having been found at Tenterden, in Kent, ten miles from here.—*J. B. Ellman; Rye, April 26, 1849.*

Occurrence of the Hawfinch at Tring and Berkhamstead.—I have now in my possession a beautiful pair of the hawfinch, which were shot here last week by a relation of mine. The birds were in full plumage, and would no doubt have bred here if allowed to remain: they were not observed previously to the day on which they were killed. I have since observed another pair in a wood near Tring. A male specimen was killed at Berkhamstead, six miles from here, about six years ago: I cannot hear of any other instance of the occurrence of the hawfinch in this locality.—*H. H. Crewe; Drayton Lodge, Tring, Herts, April 16, 1849.*

Occurrence of the Smaller Spotted Woodpecker (Picus minor) near Stowmarket.—A specimen of this bird was shot at Haughleigh, near this town, two years ago. About the same time a specimen of the cormorant (*Phalacrocorax carbo*) was picked up in a ploughed field, twenty miles from the sea, and kept alive a few days, by a person entirely ignorant of its habits: when dead, he brought it to me to give it a "local habitation and a name."—*C. R. Bree; Stowmarket, March, 1849.*

Occurrence of the Hooded Crow (Corvus corone) at Drinkstone.—In January last I saw a pair of hooded crows at Drinkstone, twenty-eight miles from the sea.—*Id.*

Occurrence of the Hoopoe (Upupa Epops) in Norfolk.—A few specimens of the hoopoe have of late occurred in this county, as they often do, especially in the spring.—*J. H. Gurney; Easton, near Norwich, May 1, 1849.*

Late-remaining Cuckoo (Cuculus canorus).—A cuckoo was shot close to the city of Worcester, on the 14th of October last.—*M. Curtler; Bevere House, near Worcester, April 19, 1849.*

Late appearance of the Swallow (Hirundo rustica) in 1848.—On the 25th of October, 1848, some workmen being engaged upon the roof of my house, I was surprised by the appearance of three swallows flying about the men. I had not seen one since the beginning of the month. By the side of the edge of the gable end of the house the plaster was broken away, forming a hole, which led under the roof. While watching the birds, which came occasionally quite close to my face, I saw first one, then another, alight upon the ledge of the gable end, near the hole. Now, I thought, I am about to settle the question of hybernation: but I was disappointed. Though I watched them for several hours—though I sent the workmen to another part of the house, yet, although they frequently settled about the hole, they never entered it. They were evidently young birds, and had been disturbed. One of them rested upon the chimney, and appeared weak and dull. I lost sight of them during the day; but the following morning, the weather being warm, I saw several flying about high up in the air. There is some mystery about these things. Why have these late appearances been more remarked this year than other years? How did the birds obtain food during the three weeks of bitter cold weather when they were not seen in October?—*C. R. Bree; Stowmarket, March, 1849.*

Occurrence of the Oyster-catcher (Hæmatopus ostralegus) in Worcestershire.—A good specimen of the British oyster-catcher was shot on Monday last, on the river Severn, near Kempsey, about five miles from Worcester. For this bird to be met with so far inland is a circumstance I believe to be unrecorded.—*M. Curtler; Bevere House, near Worcester, April 19, 1849.*

Occurrence of the Avocet (Avocetta recurvirostra) near Lynn.—A specimen of the avocet was seen near Lynn a few weeks since.—*John Henry Gurney; Easton, near Norwich, May 1, 1849.*

Occurrence of the Avocet in Romney Marsh.—A specimen of this bird was shot about four miles from here, by a fisherman, a week or two since. These birds are now very rare in this part, though formerly they used to breed here.—*J. B. Ellman; Rye, April 17, 1849.*

Occurrence of the Avocet near Ramsgate.—A pair of avocets were shot during the month of March, in the marshes between Ramsgate and Sandwich. The man who shot them told me that they had been seen in nearly the same place for some weeks before. They are very fine specimens; and I do not doubt that, had they remained undisturbed, they would have bred in the marshes.—*Henry Benson; Trinity College, Cambridge, April 29, 1849.*

Occurrence of the Spotted Sandpiper (Totanus macularius) at Whitby.—A beautiful adult female was shot just to the north of the pier, at Whitby, on Thursday, the 29th of March, by a sailor on the beach. The bird came in the flesh the next day to Mr. Graham, my bird-stuffer, in York, by whom it has been very well set up, and is now in my collection. It is, I believe, the first instance of this bird being taken in Yorkshire; though Mr. Higgins, of York, tells me he saw one in March, 1848, but was unable to secure it, on the same coast as my bird was found on, about thirty

miles south. Of this I see a notice in the 'Zoologist' (Zool. 2147).—*W. M. E. Milner; Nunappleton, Tadcaster.*

Occurrence of the Spotted Sandpiper near York.—Last spring I sent you a notice of a specimen of spotted sandpiper seen by me at Bridlington Quay. I have much pleasure in being able now to send a more satisfactory account of the occurrence of this exceedingly rare British bird, of which a very fine and well-marked specimen was shot near Whitby, at the end of last March. I saw it while in the flesh; but the intestines, &c., having been removed, the sex could not be ascertained. It was remarkably tame. When shot, it was in company with a flock of dunlins (*Tringa alpina*). This (which I believe is the second instance recorded of the capture in Britain of this American species) certainly entitles it to be without hesitation included in the British list.—*Edmund Thomas Higgins; York, May 1, 1849.*

The Jack Snipe (Scolopax gallinula) breeding in Norfolk.—Whilst walking over the marshes between Thorpe and Postwick, on the 2nd of May, I flushed a jack snipe; but it was in a very weak state, and could hardly fly. I have since been informed, by a bird-stuffer in Norwich, that one or two nests have been taken here this year.—*Peter E. Hansell; Thorpe, next Norwich, May 7, 1849.*

Occurrence of the Gray-legged Goose (Anser palustris) in Norfolk.—The week before last a fine specimen of the gray-legged goose was shot on Breydon Water, near Yarmouth. The last specimen which came under my notice in Norfolk of this bird (previous to the present one) exhibited both the white front and the black bars on the breast, which have sometimes been supposed to be exclusive characteristics of the white-fronted goose (*Anser albifrons*). The present specimen has the white front to a greater extent than the last, but is quite without the black bars. At the same time, I may add that I have never seen a specimen of the gray-legged goose exhibiting either of these characteristics to so great an extent, or so definitely marked, as is the case in the adult white-fronted goose. The present specimen is a male.—*John Henry Gurney; Easton, near Norwich, May 1, 1849.*

Occurrence of the Tufted Duck in Norfolk.—A specimen of the tufted duck was shot on Wroxham Broad, on Saturday, the 20th January last.—*T. H. Burroughes; Harrow-on-the-Hill.*

Curious Anecdote of a Duck.—This morning I observed a duck, now sitting, take from her nest an egg. Being curious to see the result, I watched her proceedings. Taking it in her bill, she carried it a short distance to the gravel-walk, when she laid it down and broke it with her bill. She then returned to her nest, and resumed incubation. Upon examination, the egg proved an addled one. Is this instinct? I should be glad to know if any of your correspondents have observed similar instances.—*G. G. Kennaway, M.A.; Exeter, May 10, 1849.*

Occurrence of the Eared Grebe (Podiceps auritus) in Norfolk.—Last week a specimen of the eared grebe, in full breeding plumage, was shot at Sutton, in this county.—*John Henry Gurney; Easton, near Norwich, May 1, 1849.*

Occurrence of the Cormorant (Phalacrocorax carbo) in Worcestershire.—A beautiful specimen of the cormorant (a female) was shot at Hewell Park, about sixteen miles from Worcester, last week.—*M. Curtler; Bevere House, near Worcester, April 19, 1849.*

Note on Sea Gulls.—A few days since I was walking in the marsh, in the afternoon, about the time that the gulls return to the sea for the night: over-head I saw two flights of gulls, of about 200 each, coming at right angles to each other; and as

I conjectured that they must come in contact, I watched their motions. When within about thirty yards of each other, each flight made a rapid *swoop*, descending in a curve about fifty feet below their former height, as near as I could judge, *with a tremendous rushing noise*, which I can only compare to as many sticks struck rapidly through the air; and then—which pleased me most—each flight passed completely through the other, gracefully regained their former height, and pursued their undeviating course to their stormy abode.—*J. B. Ellman; Rye, April 26, 1849.*

The Masked Gull (*Larus capistratus*).—I have to apologize to Mr. Strickland for having allowed his inquiry (Zool. 2068) respecting the masked gull to remain so long unanswered; but the fact is, that having left home in consequence of the illness of a member of my family, I did not receive the number of the 'Zoologist' containing that inquiry; and it was not until a few evenings back, on taking up the last year's volume, I chanced to meet with it. At this distance of time I find some difficulty in giving Mr. Strickland a definite answer. I can give only my general impressions; and such impressions are worth little in the cause of science. We left Malaga early in May, and at that time the masked gull might be seen in considerable numbers flying about in the harbour; and, if I remember aright, with the exception of one or two species of tern, it was then the only sea-bird frequenting that locality. The common gull, which had been very abundant, and the lesser black-backed gull, had some time previously deserted the coast. My impression is, that I did not see at Malaga a single example of the black-headed gull; and I remember the idea crossing my mind that the masked gull was the representative of the genus in the Mediterranean, and occupied the place filled by the black-headed gull in our own country. I could not obtain specimens, because the harbour only was frequented by this gull; and it was not allowable, or at least would not have been agreeable, to use one's gun in that vicinity. But of the species I feel quite certain; for the birds would constantly pass and repass within half-a-dozen yards of the spot I was standing on. I was not aware at that time that any doubt existed respecting the specific identity of the masked gull. My own specimen, obtained at Shanklin, certainly possesses some characteristics distinct from those of the black-headed gull: and I think the fact that this bird had not left the coast, for the purpose of breeding, so late as the first week in May,—when, if the black-headed gull be found in those parts, it must have retired to the breeding-place some time before,—is not unworthy the attention of naturalists in helping to decide the question in dispute.—*Charles A. Bury; Cheshunt, Herts, May, 1849.*

Dates of Arrival of Migratory Birds at Rye, Sussex.—The following list is very incomplete, since there are many birds of which I have not had an opportunity of noting the *first* arrival: such are therefore excluded; but I will vouch for those enumerated being correct. Wheatear, March 23; willow wren, April 2; swallow, April 7; nightingale, April 9; blackcap and wryneck, April 11; ring ouzel, April 14 and May 9; redstart, yellow wagtail and common whitethroat, April 17; tree pipit, April 26; lesser whitethroat, April 28; red-backed shrike and cuckoo, April 30; sedge warbler, May 1; swift, May 2.—*J. B. Ellman; Rye, May 14, 1849.*

Toad in Solid Wood.—"A correspondent residing at Serampore has sent us the following account of a phenomenon not often to be seen in India:—Last Wednesday (February 7th), on severing the branch of a tree, apparently of the tamarind species, I found a toad in the centre of the wood, entirely excluded from light and air. The appearance of the animal was rather extraordinary. The body seemed full of air and the skin soft and puffy, and of a light yellowish colour, with the exception of the extremities of the feet, which were hard and dark. The creature when exposed to the air seemed rather uncomfortable, and drew in its head just like a turtle when alarmed. It was thrown into a tank, when the water around, to the space of about a foot on either side, became perfectly white, like milk. It jumped out of the water immediately, apparently not liking the coldness. I did not have the opportunity of observing it further, which I regret, as the animal got concealed in the long grass on the side of the tank, and was thus lost. The general supposition as to the mode by which animals get enclosed within trees is, their taking shelter in the cavity of a tree when very young, and the growth of the tree filling up the cavity, and thus imprisoning the animal. But this supposition, if true in the present case, makes the circumstance now related the more extraordinary. The tree is an old one, upwards of fifty feet high, and having a trunk more than three feet in diameter; and the height from the ground at which the toad was found was about twelve feet. We must suppose the toad to have got into the tree when within a foot from the ground: how many years old then must the animal be?"—*'Bombay Bi-monthly Times.'*

The Great Sea-Serpent.—"I see in your paper of the 30th December, a paragraph in which a doubt is expressed of the authenticity of the account given by Captain M'Quhæ of the 'great sea-serpent.' When returning to India, in the year 1829, I was standing on the poop of the Royal Saxon, in conversation with Captain Petrie, the commander of that ship. We were at a considerable distance south-west of the Cape of Good Hope, in the usual track of vessels to this country, going rapidly along (seven or eight knots) in fine smooth water: it was in the middle of the day, and the other passengers were at lunch; the man at the wheel, a steerage passenger, and ourselves, being the only persons on the poop. Captain Petrie and myself at the same instant were literally fixed in astonishment by the appearance, a short distance ahead, of an animal of which no more generally correct description could be given than that by Captain M'Quhæ. It passed within thirty-five yards of the ship, without altering its course in the least; but as it came right abreast of us, it slowly turned its head towards us. Apparently about one-third of the upper part of its body was above water in nearly its whole length, and we could see the water curling up on its breath as it moved along, but by what means it moved we could not perceive. We watched it going astern with intense interest, until it had nearly disappeared, when my companion, turning to me with a countenance expressive of the utmost astonishment, exclaimed, 'Good heavens! what that can be?' It was strange that we never thought of calling the party engaged at luncheon to witness the extraordinary sight we had seen; but the fact is, we were so absorbed in it ourselves that we never spoke, and scarcely moved, until it had nearly disappeared. Captain Petrie, a superior and most intelligent man, has since perished in the exercise of his profession: of the fate of the others then on deck I am ignorant, so the story rests on my own unsupported word, but I pledge that word to its correctness. Professor Owen's supposition that the animal seen by the officers of the *Dædalus* was a gigantic seal I believe to be incorrect, because we saw this apparently similar creature in its whole length, with the exception

of a small portion of the tail, which was under water; and by comparing its length with that of the Royal Saxon (about 600 feet), when exactly alongside in passing, we calculated it to be in that, as well as in its other dimensions, greater than the animal described by Captain M'Quhæ. Should the foregoing account be of any interest to you, it is at your service: it is an old story, but a true one. I am not quite sure of our latitude and longitude at the time, nor do I exactly remember the date, but it was about the end of July. R. DAVIDSON, Superintending Surgeon, Nagpore Subsidiary Force; Kamptee, 3rd January, 1849."

[In a letter addressed to the Editor of the 'Bombay Times.'—*E. N.*]

The Great Sea-Serpent.—"Captain Adams, of the schooner *Lucy and Nancy*, which arrived at Jacksonville, Florida, on the 1st of April, from New York, had sight of a monster in many respects resembling the sea-monsters described by many others. Captain Adams states that on the morning of Sunday, the 18th of February, about nine o'clock, when off the south point of Cumberland Island, about twelve miles from the St. John's (Florida) bar, the attention of himself, crew and passengers, was suddenly rivetted upon an immense sea-monster, which he took to be a serpent. It lifted its head, which was that of a snake, several times out of the water, seemingly to take a survey of the vessel, and at such times displayed the largest portion of its body, and a pair of frightful fins or claws, several feet in length. His tail was not seen at any time; but, judging from the dimensions of the body, the captain supposes the leviathan to be about 90 feet in length. Its neck tapered small from the head to the body, and it appeared to measure about seven feet across the broadest part of the back. The colour was that of a dirty brown. When first seen it was moving towards the mouth of the St. John's. The monster moved from the side of the vessel, and placed itself athwart its track, in front of her bows; but Captain Adams, not feeling partial to an encounter with his snakeship, ordered the vessel to be kept off. A boy on the deck, not knowing his antagonist, had seized a harpoon, and was in the act of striking, when he was prevented by the vessel's moving off."—*Boston Atlas.*

The Great Sea-Serpent.—"What degree of confidence the following story may gain is to me a subject of very little consideration; for as I can have no view of gaining anything by it, so it certainly will appear that it would hardly be worth the trouble of invention: but as a story of this sort has made its appearance among our transatlantic friends, without being at all credited, it is as likely in Europe this may have the same fate; yet if it can afford any amusement or information for intelligent and scrutinizing minds, for their gratification I freely give it to the press, assuring them, on my sacred honour, of the truth of what I am about to describe. On Sunday, about 5 P.M., being then in latitude 46, longitude 3, by dead reckoning, observed an immense body on the surface of the water, apparently without motion, but water spouting from it, not unlike the blowing of a whale. I immediately got my glass; and, from its rugged appearance and showing nothing where the water issued from, I began to entertain some doubts, that this must have been the vigia laid down for Barenethy's rocks or the three chimneys, and, so prepared in my own mind, I directed the steering sails to be taken in and the ship prepared for going about. Some of my ship's company were of opinion it was a ship bottom-up: this I thought not unlikely, and went into the main cat harpens to look more distinctly at it: the appearance then was still steady, but irregular. I saw neither head nor tail above the water, but a hump from one extreme resembling the rise or point of rather a triangular rock: this tapered to a distance,—I certainly believe 70 or 100 feet, and the water

broke over it, a little beyond it: it discharged the spout; but nothing showing itself, undetermined in mind what it could be, or whether I should tack the ship, it all at once disappeared, and, to my great astonishment, a head and neck—resembling something of a serpent's—made its appearance, erected about six feet above the surface of the water. After taking a survey towards the vessel, it all at once vanished, leaving us full of conjecture and surprise. It gives me more confidence in making the above statement, as one of the seamen, whose name is Jonathan Townsend, was in the main top, and saw the creature I have described, and would feel no hesitation in taking an oath to it. GEORGE SANFORD, Lieutenant R.N.”

[Copied from a memorandum-book of Lieut. Sanford, and communicated by Dr. Scott, of Exeter. There is no date to the above statement, but it is presumed to have been written about the year 1820. Lieut. Sanford then commanded a merchant ship, the *Lady Combermere*.—*E. N.*]

Occurrence of a supposed New Species of Riband Fish on the Coast off Cullercoats.
 —At the annual meeting of the Tyneside Naturalists' Field Club, a paper was read, being the joint production of Mr. Albany Hancock and Dr. Embleton, on the specimen of riband fish (genus *Gymnetrus*) lately found off the coast at Cullercoats, which is intended for presentation to the Museum of the Natural History Society, by its proprietor, Mr. Edward Whitfield. It will probably be printed at length in the Transactions of the Society, but we cannot forbear giving one or two extracts. First, with regard to the general appearance of the fish. The fishermen who caught it state that when first taken it was all over of a brilliant iridescent silvery hue, which soon faded; but when seen by Mr. Hancock and Dr. Embleton, all traces had disappeared of the iridescence, except about the pectoral fin and head, and the colour was a silvery gray, with a few dark spots and streaks towards the anterior part of the body. The fish presented somewhat the form of a double-edged sword-blade, being excessively compressed. Its length was 12 feet 3 inches. Immediately behind the gills it measured 10 inches in depth. From this point it gradually enlarged to a distance of upwards of two feet further back, where it attained its greatest depth, of $11\frac{1}{4}$ inches. The skin was covered over with a very fine pigment-looking matter, to which the silvery colour was owing, and which came away from the skin on the slightest friction. The whole surface of the skin was studded with very numerous small, distinct, and irregularly-disposed tubercles of bone. The dorsal fin extends from a little way above and behind the eye, uninterruptedly to within three inches of the posterior end of the fish. In front of it was a tall prominent crest, directed forward, which was stated by the captors to be 12 or 14 inches in length when the fish was taken; it consisted of twelve spiny rays. Exclusive of the crest, there are 267 rays in the dorsal fin. The head is small and short; the tongue very small, smooth and fixed. No teeth were discovered. The eye was an inch and a half in diameter; the iris of a beautiful silvery white, and rather broader than the diameter of the pupil. The writers, after some further minutiae, proceed to give the results of an internal examination of the fish. They then observe that, on referring to what they had been able to find recorded respecting the genus *Gymnetrus*, they discovered that the figures, as well as the descriptions of the external parts, were very imperfect, and the anatomy

little known: hence they had been induced to draw up a minute description, which they hoped would be of service should this specimen even prove to belong to any of the species already noticed. They were, however, disposed to look upon the Cullercoats fish as a distinct species. Of this rare genus five species are known; two of these are Norwegian, two belong to the Indian seas, and probably a fifth, which was captured off the Cornish coast. The Norwegian species appears generally to precede or accompany the shoals of herrings, and hence is called "king of the herrings." Of these the *G. Ascanii* of Shaw seems to be the most nearly allied to our fish, but is distinguished from it by the following marks. The former is 10 feet long and 6 inches in depth; its length is, therefore, to its depth as 20 to 1; the latter, according to the measurements above given, is 13 times longer than it is deep; the former has, according to some 120, and according to others 160, rays in the dorsal fin; the latter has 267 rays. There are other peculiarities which show a great difference between *G. Ascanii* and the Cullercoats fish. The other Norwegian species, named *G. Grillii*, is noticed in Griffith's Cuvier as being 18 feet long, and having upwards of 400 rays in the dorsal fin: this also is concluded to be distinct from our specimen. There is another species, figured in Cuvier and Valenciennes, vol. x. pl. 298, which comes near to our fish, but, from its markings and in other respects, it is a species different from ours. Of the Indian species, one, the Russelian, described as a probable variety in vol. iv. part 2 of Shaw's Zoology, is only 2 feet 8 inches long, and has 320 rays in the dorsal fin; and it differs in several other respects. The other, named by Bloch *G. Hawkenii*, is described by him as 2 feet long and 6 inches deep; its proportions are therefore very different from any other member of the genus. The writers next refer to the specimen caught off the south coast of Cornwall, in February, 1791, and, after describing its peculiarities, they incline to the opinion that the Cornish species is distinct from the Northumberland specimen; but even if they adopted the contrary opinion, it would be necessary to give a new name to our specimen, as it is evidently distinct from all the species hitherto named. Notwithstanding the rarity of this genus, they go on to remark, there is some reason to believe that species belonging to it have been taken before this on our eastern coast. An elderly gentleman, residing in Newcastle, stated that about fifty years ago a silvery fish, resembling in its general characters the subject of this paper, was taken off Tynemouth; and it appears by the 'Annual Register' that a fish was captured at Whitby, January 23, 1759, closely related to it, if not identical with our species. The writers had, moreover, learnt from a Norwegian captain, who frequents this port, and has traded to Archangel, that in the White Sea, fish closely resembling the Cullercoats specimen have been, though rarely, seen,—the silvery colour, long attenuated form, and the rapid undulating motion, being their chief characteristics. They are there called stone serpents. It has occurred at once to many here, on first viewing the *Gymnetrus*, that it may have been taken for the famous sea-serpent; and the Archangel name of the fish seen there strengthens the idea that it possibly may, at times, have deceived the eye of the credulous mariner, from its rapid undulating motion and linear form, and from its occasionally swimming at the surface. On consulting the accounts, however, which have appeared of the sea-serpent, it was found that they related to creatures widely different from the riband fish; such as whales, seals, sharks, &c., seen under disadvantageous circumstances, or imperfectly observed. Still, though the *Gymnetrus* may not have originated the idea of the existence of a marine serpent, the occasional appearance of this fish may very materially have tended to keep up, among

the Norwegian fishermen, the faith which they are stated to hold in the existence of such a monster. Thanks were voted to Mr. Whitfield, for the facilities he had afforded for the examination of the fish, and for his generous intention to make a donation of it to the Natural History Society of this town. A special vote of thanks was given to Mr. Hancock and Dr. Embleton, for their interesting and valuable paper.

[It is almost needless to say that this is the marine animal referred to in the last number (Zool. 2433).—*E. Newman.*]

Supposed Monstrosity of Planorbis carinatus.—While searching yesterday for some fresh-water shells, amongst a quantity of drift thrown up from our river, I found one of a very remarkable appearance, differing entirely from any that I had met with during some years of collecting in this neighbourhood. It has the flattened form of a Trochus at the base, and tapers upwards to a sharp, cone-shaped spire, or what would have been such, but that the extreme point is slightly broken, the shell being dead and bleached. At first it puzzled me to determine; but, on a close examination, I have no doubt it is a distorted and much-produced individual of *Planorbis carinatus* or *marginatus*, probably the former: the aperture is decidedly that of a *Planorbis*, and the keel is observable, following the suture of the volutions. Still, the whole appearance of the shell is so regular, and even elegant, as to make one almost hesitate at pronouncing it a monstrosity. There is a certain *finish* about the base, which forbids the idea of its being a *Bulimus* in the young, unformed state, which at first sight it somewhat resembles. Dr. Turton gives a figure, in his 'Conchological Dictionary,' of a shell found near Dublin, which he calls *Helix terebra*, and which is certainly very similar, only the summit of the spire is more completely *untwisted* than in my specimen: no doubt it was a like distortion of some *Planorbis*, as Dr. T. seems to have suspected, and I believe stated in a subsequent work.—*W. D. King; Sudbury, 5th mo. 1, 1849.*

Proceedings of the Entomological Society.

May 7.—G. R. WATERHOUSE, Esq., President, in the chair.

The following gentlemen were present as visitors: M. Chevrolat, M. Javet, Mr. Swanzy, Mr. Hogg and Mr. Marshall.

The Secretary announced that Part 6 of vol. v. of the Transactions was on the table; also that the following presents had been received:—A cabinet of seventy-four drawers, from F. Bond, Esq., who wished that it might be made subservient to a collection of British insects more especially: a special vote of thanks was passed to Mr. Bond for his liberality. 'C. J. Schöenherr, Genera & Species Curculionidum Catalogus ab. H. Jekel, Societatis Entomologiæ Galliæ Sodali,' one volume, from the publisher and editor, M. Jekel, of Paris. 'A Systematic Catalogue of the British Tineidæ and Pterophoridæ,' two copies, from the author, H. T. Stainton, Esq. The

'Athenæum' (1848, Oct., Nov. Dec.; 1849, Jan., Feb., March, April), from the editor.
'Du Systeme Nerveux chez les Invertébrés dans ses rapports avec la Classification de ces Animaux, par M. Emile Blanchard,' from the author.

The following gentlemen were balloted for and elected as subscribers: R. Gear, C. S. Gregson, B. B. Labrey, T. H. Allis, E. Brown, R. F. Logan, and G. Ransome, Esqrs.

Herr P. C. Zeller, of Glogau, was balloted for, and elected an honorary member, in the room of C. J. Schöenherr, deceased.

Certificates were read in favour of W. Michael, Esq., of Red Lion Square, as a subscriber; and Francis Swanzy, Esq., of Dix Cove, West Coast of Africa, as a corresponding member.

P. H. Vaughan, Esq., of Bristol, signed the obligation-book, and was admitted a member of this Society.

Mr. S. Stevens exhibited a section of a stem of a thistle, showing pupæ of *Onocera Cardui* imbedded in the pith, the larvæ having fed thereon. He also exhibited a rare species of *Curculio*, having a *Sphæria* attached to its body: he had received it from Mr. Bates, by whom it was found in Para.

Mr. H. T. Stainton exhibited a box sent up by Mr. Allis, of York, containing numerous specimens of Haworth's *Tineidæ*, with that author's labels attached, by seeing which, obscurities with regard to many species had been satisfactorily cleared up.

Mr. Douglas exhibited some larvæ of a species of *Porrectaria* in the leaves of *Ballota nigra*, the parenchyma of which they eat, leaving the cuticles, giving a blotched appearance to the foliage. These larvæ inhabit cases formed by them out of the leaves, and they enlarge their habitations from time to time as their growth requires. The cases are long and flattened in form and black in colour, and are abundant on the *Ballota nigra*. Mr. Douglas stated, that in the place where he found these larvæ he had, last year, found *Porrectaria lineola* of Stephens, and he supposed these might be the larvæ of that species.

Mr. Douglas also exhibited a specimen of *Aphelosetia rufocinerea* of Stephens, reared from a pupa in a web on the stem of the common dock, found by him last March, at New Brighton. This was interesting as an illustration of the history of a species about which nothing was known, though it was very common in this country. It did not appear to be known on the Continent.

Mr. Hogg exhibited part of an immense nest of *Vespa vulgaris*, formed in the roof of his own house, at Norton, Durham. From its great size, he was of opinion that this nest was the work of more than one year.

Mr. Swanzy exhibited some rare and interesting *Coleoptera*, collected by him at Dix Cove, West Coast of Africa.

Mr. W. S. Dallas read a "Description of a New Hemipterous Genus, *Urochela*, from Boutan, East Indies;" with a figure in illustration.

Mr. Douglas read a paper on twenty species of *Gelechia*, being a continuation of his monograph "On the British Species of the Genus *Gelechia* of Zeller."

Mr. Westwood called the attention of the Society to the descriptions and notices which he had published in his 'Introduction,' and in the 'Journal of Proceedings' of the Society for July, 1847, of a minute but singular Hymenopterous insect, parasitic in the nests of mason-bees and wasps, to which he had applied the name of *Melittobia Audouinii*; having at the same meeting exhibited specimens of the insect

and drawings of its structural details. The facts and characters were sufficient to identify the insect, and to distinguish it from every known species of the family to which it belongs. Notwithstanding this, Mr. Newport (who was present at the above-mentioned meeting) had recently read a memoir on the same insect before the Linnean Society, and had given it the name of *Anthophorabia retusa*; the description of which, however, communicated by himself, and published in the 'Gardener's Chronicle' of the 24th of March last, was perfectly unintelligible,—six out of nine of the characters laid down by Mr. Newport being erroneous.

Mr. Westwood likewise complained that in the Report of the Proceedings of the Linnean Society, of the 1st of May inst. (reported in the *Gardener's Chronicle* of the 6th inst.), Mr. Newport had stated that Mr. W. had mistaken the rudiments of the antennæ, in the larvæ of the Ichneumonidæ, for ocelli; the fact being, that although De Geer had described the dark points in question as eyes, Mr. Westwood, having in view the structure of the head of the larvæ of the saw-flies (possessing both ocelli and antennæ), and of the aculeate Hymenoptera (possessing neither), had expressly guarded himself from determining their nature, simply stating that they *resembled* ocelli.—*J. W. D.*

Notes on the Marine Zoology of Dunbar.—Corallines, Zoophytes and Annelides.

By ROBERT GRAY, Esq.

I BEG to offer the following observations in Natural History, the result of my rambles on the Dunbar shore during the past year. In this communication there may be nothing new or startling, yet the simple narration of these may not be without a portion of the usual interest attached to such subjects.

During four months of the winter season—from November, 1847, to March, 1848—I was in the daily habit of visiting the fishing-boats, on their return to the harbour; a practice which every sea-side naturalist should pursue if he desires to enlarge his acquaintance with marine zoology. The interest of these visits is much increased when the fishermen are previously instructed to retain all the treasures which are dragged from the deep; and often have I been delighted with the sea productions handed to me by these hardy sons of the ocean, who even become interested in what they bring when they are told something of its history.

The most interesting of all marine objects are the corallines and zoophytes. At Dunbar the commoner kinds occur in profusion, and I have had the satisfaction of gathering in one day as many as filled an ordinary-sized washing-tub. These, carried to a dark cellar, were laid under the stream of a water-pipe, and, on being stirred with a piece of wood, they appeared as a perfect ball of living flame. The phosphorescent light was obviously produced by a soft-bodied, pink-coloured worm, which lay entwined about the stalks of the various zoophytes; and it shone most brilliantly when the worm was in motion. I proved this to be the chief source of light in the following way: having procured a fresh bundle, two hours after being taken from the sea, several handfuls were carefully selected, deprived of their luminous parasites, and thrown into a tub of fresh water. On stirring the mass, however, no flame appeared but a

green twinkling spark, which proved to be one of the worms alluded to. The light proceeding from the polype-cells was very feeble, and easily extinguished by fresh water; but the shining quality of the slender Annelides retained its vividness after twelve hours' immersion, and finally ceased in two days. The species most abundant, in the immense bunches already mentioned, were *Plumularia falcata*, *Sertularia abietina*, and *Thuiaria Thuja*: the last-mentioned is daily gathered, in every stage of growth, on a variety of objects: it is commonly found adhering to old valves of *Cyprina Islandica* and decayed shells of *Buccinum undatum*; but the largest and best specimens are torn by the fishermen's hooks from the surface of large stones lying at a depth of thirty or forty fathoms. Those met with on worn shells and small fragments of stone appear to have their growth retarded by the rolling motion of their support, and are seldom higher than six or eight inches; but many specimens measuring sixteen inches have been given to me, which were plucked from a firmer bed. The greater part of the collection which I made was brought from deep water; but occasionally splendid specimens of the 'lobster horn' were taken up on the crab-cages, from the rocky ground close on shore.

The most plentiful zoophyte which burdens the lines of the fishermen is *Alcyonium digitatum*. This white species, known by the name of 'dead men's hands,' is seen on almost every hook. The red-coloured *A. glomeratum*, which is not so common, forms a pretty contrast with it when the polypes are fully expanded. I have kept both alive for a period of two months: the latter was first dead; the former only survived a few days. In the bed of the sea *A. digitatum* grows upon anything which lies there,—pieces of wood and stone, old shells and thick sea-weed: it is much infested by a species of burrowing shell, which bores through its substance, without, however, leaving a trace of its entrance. I have taken six or eight of these shells from a small portion of *Alcyonium*; and so firmly were they imbedded by the contraction of the polypes, that the destruction of the specimen was necessary for their release. The shapes which this zoophyte assumes are manifold and curious. To the five-fingered lumps often procured, the title 'dead men's hands' is truly appropriate; and on some objects it appears like an incrusting fleshy sponge. In this state it forms the outer covering of the India-rubber-like tubes of certain Annelides, and is also found spreading over the branches of trees, and other pieces of wood which have become waterlogged and sunk to the bottom; but should these be pre-occupied with other corallines, it will dispute the surface, and, as is generally the case, envelope the objects by its more rapid growth.

Most of our pelagic animals possess a luminous property in some degree; and perhaps not the least interesting of the class are those brittle Annelides which exhibit so often a voluntary emission of light. Irritation is the main cause of the brilliant fires displayed by the plant-like zoophytes, and other species, of which the minute *Acalephæ* are common instances. About midnight, I have often looked with interest on the exhibitions of these *Medusæ*, on being alarmed by a handful of small stones thrown into the water: seated in a small boat in the harbour, I showered the gravel around me till the sea appeared like a sheet of glass studded with sparkling diamonds,—a sight well worth taking the trouble to enjoy. At the same hour of night I have extended my rambles to the rocky shore, where the receding tide had left pools enough for ample observation, and there seen the brittle worm shooting like a meteor along the sandy bottom, and wriggling its way into the corners and crevices of the rocks,

amongst the soft green Fuci. This remarkable inhabitant of the pools, which may be described as being like an elongated Chiton shell, is not confined to the shore, but lives as well in forty fathoms of water, whence it is fished up on old bivalves, and discovered amongst the shreds of zoophytes and mud which adhere to these objects. It is extremely sensitive; so much so that the slightest touch sets it into convulsions. In numerous instances I have laid before me specimens, which, on being moved, engaged in twistings and contortions so violent that all were broken into pieces, each portion striving in its turn to increase the number of fragments. In the water it swims with a rapid but somewhat irregular motion; and when at rest lies generally concealed amongst the sand, and on the under-side of flat stones. In length it seldom exceeds an inch, when its habitat is by the shore; but individuals from deep water, which shelter themselves by constructing a house of agglutinated mud, sometimes measure two inches. Its legs, or, more properly, ciliæ, are variegated and iridescent, like the spines and hairs of the 'sea-mouse' (*Aphrodita aculeata*). It is the only marine animal I have yet seen emitting light of its own accord; and I may mention that—unlike those soft contractile worms which produce blue and green colours—its phosphorescence is of a bright yellow, and has a pretty appearance when seen through a liquid medium. As a proof of its tenacity of life, I may state that, on one occasion having accumulated several basketfuls of broken shells, sand and zoophytes, which I could not conveniently examine, I discovered several specimens of this animal in active life after a lapse of eight days, although they had been during that time exposed in a room where a fire was burning; and while noticing this fact, it may not be irrelevant to add the result of an experiment lately tried with a very common native of every stony beach,—*Ligia oceanica*. I took six or eight of these animals and put them into a bottle, afterwards closely corked, containing strong aqua, in which they struggled with undiminished vigour for three quarters of an hour: the last one died an hour after having undergone this striking change of element: fresh water kills them much sooner.

While the deep-sea fishing is prosecuted in the winter months, the naturalist has frequent opportunities of examining the fleshy polypes that are daily brought to the shore. There is a pure white species extremely common, and bearing a resemblance, when contracted, to fish-milt, lying constantly exposed before every fisherman's door. In particular localities known to the fishermen it is very abundant; indeed I have been told by several of the more intelligent men, on whose statement I could rely, that they have counted on one piece of stone, brought up on their lines, upwards of seventy, varying much in size—some in a state of full expansion and others closed. I kept two large ones, in a collection of a dozen specimens of other kinds, for six or eight weeks. The variegated or striped *Actinia crassicornis* is also common, and usually found to occupy the concavity of a large Venus valve; but they are sometimes affixed to a locomotive site, and I have been twice fortunate in procuring the uncommon show of two upon the common modiole (*M. vulgaris*). In one of these instances the shell itself was a fine one, being nearly eight inches long by four and a half in breadth; and the polypes, not less magnificent, outshone all others previously obtained. They lived, however, but a short time; and I was obliged, although reluctantly, to throw the modiole into hot water, to facilitate the ejection of its tenant, which might have been spared had its noble parasites flourished in confinement. But other specimens of this fine 'sea flower' lived under my care for some weeks: they

were held in a tub of sea-water, which was daily renewed. Fresh limpets and small starfishes were given to them; but the former had the preference, the latter being frequently allowed to escape. Limpets seemed to be very agreeable food, and when removed from their shells were more eagerly swallowed. On giving each polype three or four of these Mollusca, they were immediately seized with its tentacles, and retained till its mouth was gradually expanded to receive them. The whole process of opening the mouth and swallowing the limpets occupied about fifteen minutes, the animal soon thereafter resuming its natural position when fully expanded. The food, after having been in the animal's stomach two days, was expelled in a very mutilated state; in some instances, where it was *Asteriæ* or small fishes, these could with difficulty be identified. These wonderful objects of the deep form an excellent barometer, and, if carefully watched, will be found a pretty sure index to the state of the weather. Two or three beautifully striped specimens in my possession (*A. crassicornis*) had a quickness of sensation not common to the whole tribe, and withdrew their tentacula on the approach of rain or snow, assuming the form of a round ball, in which state they remained till a rise in the barometer gave indication of a change to dry weather. It is even said by some writers, that when expanded in shallow water, enjoying the cheering influence of the sun's rays, they will suddenly become contracted, should a cloud pass between them and that orb, so as to obscure the glare of light; but I have never been able to confirm this statement. The white 'sea Anemone,' as it is called, and the pale red-margined species, did not seem to be at all affected, but remained in full expansion, from day to day, without exhibiting any extreme sensitiveness, even when irritated.

When the water was disturbed, so as to lash on the sides of the tub in which they were placed, it seemed to invigorate and please them, and every part of their beautifully delicate structure could be seen in happy motion,—their bodies raised and their feelers stretched out to the utmost extent; and even when the commotion had subsided, the increased size of the animal caused the arms to float gracefully on the surface. If by neglect the water was allowed to become polluted, they closed up, and continued so till a fresh supply was put on them: they then speedily revived. If, however, they are allowed to experience this unnatural privation too often, their destruction soon becomes apparent. The first indication of decline is the animals leaving the stone or shell which they occupy; and it seldom happens that they resume their original position. Once detached, they never appear so large or healthy: they languish till the final change is made, and that is a complete reverse—a turning outside-in. In this condition many of them lived three weeks, but without taking food.

A most remarkable and gorgeous polype came under my notice: it was very large, and the upper part of it was folded over the base; but when fully expanded it resembled an inflated ox-bladder. This mammoth of the collection was placed in a commodious vessel by itself; but, although no exertions were spared for its preservation, it was the first to show signs of decay, and died in one month from the date of its confinement. Less delicate, but especially smaller individuals, will survive double that period; and to the small red species which inhabit the pools at the sea-shore, there is no apparent difference between an earthenware jar and the sides of a rock, or a bed of sand. Mr. Nichol, of Dunbar, had one or two in his possession upwards of a year; and the same intelligent observer of their habits tells me that, during the course of that time, one of them produced an offspring of thirty, which settled and grew on various parts of the vessel containing them.

Such are a few of the leading extracts from my note-book for December and January. The notes were taken at the moment of observation, before an unlimited choice of specimens; in many instances at night, on the cold dark rocks, by the light of the moon or a lantern; at other times at sea, in a fishing-boat; and never at any time without the objects on which they treat being before me.

ROBERT GRAY.

West-end, Govan, near Glasgow,
May 1, 1849.

(To be continued).

*The Sea-side Book.**

[Perhaps the most taking title and subject ever devised for a book on Natural History. The knowledge possessed by the author, and the elegance and truth of the numerous wood-engravings, greatly enhance the value of this agreeable little book. I think its style rather too technical and abstruse for the generality of sea-side idlers: sometimes, however, the author descends to the level of non-scientific readers, as will be seen from the following quotations.—*Edward Newman.*]

“The Mollusca which inhabit sandy shores habitually, and in the greatest numbers, are not the univalve or snail-like families, whose organization is more adapted for crawling over rocks and sea-plants, where also they find their appropriate food;—but another very distinct group of shell-coated animals, called Conchifera, or Testaceous Acephala, which are capable of living buried, sometimes to a considerable depth, in the sands. Some of this class of animals are indeed confined to rocky places, anchoring themselves in various ways permanently in a position, either on a rock or on the stem of a sea-weed; or forming hollow chambers by burrowing in the solid rock itself; but the majority of species inhabit sandy places, and their shells continually meet us on the sandy shore, while the living animals may be detected buried along the margin of the retreated tide. The shell, in all these animals, consists of two principal, saucer-shaped pieces, more or less perfectly covering the body of the animal, and united together by a more or less complex hinge, opened by a highly elastic ligament. The scallop and the common cockle offer well-known examples of such a shell:—the first having a simpler structure, both in the hinge and in the animal, is better adapted for explaining the general features of organization, while the latter may be instanced as affording modifications of structure which adapt it to the peculiar locality to which it is confined.

“On opening the valves of a living scallop we perceive, within the margin of the shell, a soft membrane, which lines the whole of the inner surface, and encloses the body of the animal as in a cloak, open in front through the centre; so that a curtain

* ‘The Sea-side Book, being an Introduction to the Natural History of the British Coasts, by W. H. HARVEY, M.D., &c.’ London: Van Voorst. 1849.

fringed round the edge with innumerable slender filaments, hangs from each valve of the shell. This membranous envelope, which is called the *mantle*, exists, though under many modifications, in all the Mollusca, and indeed is one of their most essential parts. It is by means of this organ that all the shell-coated tribes cover themselves with the beautiful shells which are objects of so general admiration. The thickened margin of the mantle is furnished with glands which secrete both colouring matter and carbonate of lime. From the latter material, deposited in cellular substance derived from the animal, the shell is gradually formed by constant additions to its margin; while the colouring matter, poured in at the same time, gives to the outer surface all the peculiar markings which characterize each kind. The outer coat of the shell is therefore entirely the work of the margin of the mantle. Its increase in thickness is an after-process, effected by the general surface of this organ, which throws off layers of pearly substance, and adds them continually, one after another, to the inner surface of the shell. Thus as the shell increases in size, its walls grow in thickness. In the scallop, among the fringing processes of the margin, are found a number of glittering studs of metallic brilliancy, which are supposed to be eyes—and at least are the only representative of those organs observed in the class, whose habits little require such a provision. Within the mantle are found the branchiæ or lungs, which consist of four delicate leaves formed of radiating fibres of extreme fineness. The *mouth* is a simple orifice, bordered by membranous lips, and placed at one end of the body, between the two inner leaves of the branchiæ. A great portion of the body consists of an extremely firm muscle, round which the stomach, liver, and other parts, are disposed, and which connects the two valves of the shell together; by its expansion allowing them to open, and causing them to close by its contraction. This most powerful muscle alone keeps the shell closed; and its strength must be familiar to every one who has opened an oyster, whose resistance to the knife ceases only when this muscle is cut asunder.

“Such are the general features of the more simple conchiferous animals, as the scallop and oyster. If we examine the cockle, we shall find some modifications, and the full development of a highly organized muscular foot. This organ exists but in a rudimentary form in the scallop, whose habits suggest other modes of locomotion than those of running and leaping. The scallop, which inhabits deep places, where it lies on a rocky or shelly bottom, swims or *flies* through the water with great rapidity, moving itself by suddenly opening and shutting the valves. In the cockle the first difference which strikes us is, that the edges of the mantle are not open all round, as in the scallop, but united together, at one side, into a short tube. On cutting a little deeper we perceive that the shell is held together by *two* muscles, one placed on each side of the central hinge. The hinge itself is differently formed, the *ligament* which connects the valves being external, and the joint furnished with a nicely fitted apparatus of tooth-like plates. On the whole, we have a higher type of structure, while the development of a large muscular foot, capable of being either wholly retracted within the shell or protruded to a considerable length, marks a new feature in the animal, which at once suggests a difference in habits and destiny. That the differences observed in the organization of the cockle, and of the allied genera, *Mactra*, *Venus*, &c., and which are found in a still more advanced state in the *Myæ* or gapers, and the *Solen* or razor-shell, admirably fit them for the sphere of life for which they are designed, is at once obvious when we consider these modifications of structure in reference to the habitat of the animal.

"All these animals inhabit sandy or muddy places. Their dead shells are among the commonest which we meet with on almost every strand; and they may be found in a living state, near low-water mark, buried in holes, which reveal themselves by slight depressions, from which little jets of sand and water may, every now and then, be seen to issue. For such a life as this their organization peculiarly fits them. Were their mantle open on all sides, like that of the scallop, their branchiæ would soon become choked with the sand or mud, which would have free entrance with the water received into the shell, and thus the animal would quickly be suffocated. But the tubular opening through which the currents of water enter effectually protects the delicate breathing-apparatus. Their strong muscular foot, too, affords an instrument with which they can with great rapidity dig into the sand, and thus escape pursuit. So rapidly is this mining operation performed that it requires some dexterity and quickness to surprise even a cockle in its hole, before it has burrowed beyond our reach. But it is not as a digging tool only that the foot is employed; it is used in actual locomotion on the surface, to enable the animal either to advance with a crawling movement, or to make jumps along the sand. The common cockle is not the least nimble of these jumpers. It protrudes its foot to the utmost length, bending it and fixing it strongly against the surface on which it stands, and then, by a sudden muscular spring, the animal throws itself into the air, and, by repeating the process again and again, it hops along at a rapid pace. In the cockle, which lives at no great depth in the sand, the cohesion of the two membranes of the mantle is not complete, and the tubes or *siphons* are very short. In other genera, as the razor-shells, which burrow to a greater depth, the lateral cohesion is much more perfect. The body of the animal is enclosed in a sort of sac, while the tubes, through which currents of water enter to the branchiæ, are much protruded. The animal can thus lie deeply ensconced in the sand or mud, and keep the mouths of the tubes nearly on a level with the surface of the sand, in direct communication with the water.

"The mode in which all the animals of this class feed is not the least curious part of their history. They subsist, for the most part, like vegetables, without the trouble of seeking for prey. It is brought to the door of their shells, and they have but to 'gape and swallow it.' The water which enters at the openings in the mantle brings in with it nourishing particles of one kind or other, minute animals, &c. These, floating about in the shell, come under the influence of millions of minute *cilia* or vibratory hairs, which clothe every part of the branchial fringe, and which, by their constant motion, form a current strong enough to drive forward to the mouth whatever is floating in the water. The food is thus presented to the lips, which have only to decide whether to receive it or let it pass into the influence of the retreating current, which will carry it out of the shell. To so low a type is animal *will* reduced in these passionless creatures, which, nevertheless, exhibit the most wonderful perfection in the construction of their minutest organs, and the most beautiful adaptations of means to ends. The beauty of the shells of many of them is apparent to all—the graceful forms of many species of *Venus* and *Chione*,—the rich colouring of the *Pectens*, the *Spondyli* and *Tellinæ*—but all these beauties are less impressive to the mind than the exquisite structure of the *mantle* by which these shells are secreted, and the admirable order with which the very particles of the shells are arranged: an order so exact, that the *species* to which a *minute fragment* of a shell belongs may often be determined, or approximated to, by making a microscopic examination of thinly-cut slices. Thus, an examination of shelly particles, no bigger than grains of sand, may reveal to the

naturalist much of the history of the shell of which it is the debris. The importance of such a fact to the geologist is obvious, but I speak of it here chiefly as affording an instance of the wonderful skill with which these humble works of an unseen Worker are constructed. 'Lo, these are parts of his ways, but how little a portion is heard of Him!'"—p. 34.

"Much lower in the scale of being than bivalve Mollusca, but elaborately organized, and offering many interesting points in their history, are the heart urchins, a tribe of animals enclosed in egg-like shells, coated with spines, which inhabit all our sandy bays. There are several recent British species, but I shall only mention the common heart urchin (*Amphidotus cordatus*), mermaid's head, or sea egg, as it is variously called, which is found all round the coast. When alive, it is thickly clothed with fine hair-like spines, each of which is articulated at base with a minute nipple, forming a ball-and-socket joint, so that the spine can move freely in all directions. The spines are of different forms and length on different parts of the body, and, frail as they appear, serve the purpose to which they are applied, of enabling the animal to sink itself in the sand, shovelling the fine particles out of the way, and throwing them over its back. When thrown upon shore, the spines are usually more or less broken, and soon are completely worn off, when the dead shell resembles a heart-shaped egg, of a dirty-white colour, frosted over with minute tubercles, which are largest on its under surface, where the orifice of the mouth is seen; and it is marked, both on the back and lower surface, with five radiating smooth depressions, bordered with a double row of *pin-holes*. These spaces, which are much more developed on the back than on the oral surface, are called *ambulacra*; and through the pores or *pin-holes* which border them, the animal protrudes long worm-like suckers, which serve the office of feet, and enable him to move about by a sort of *warping* motion (to speak nautically), fixing the sucker of one fibrous cord in advance of his position, gradually bringing the rest forward, and so dragging the body along. Those on the oral surface are much less developed, and chiefly serve to hold the ground. It is curious to find a creature whose organs of locomotion are most developed on the upper surface; but we may be assured that they are not so placed without a wise design. It is easy to see that such an organization enables the creature to recover its natural position with ease, if accidentally inverted; but the arrangement probably serves many other purposes.

"The affinity of the heart urchin with the common egg urchins is readily seen; their connexion with starfishes is, at first sight, less obvious. Nevertheless, a careful comparison of the living animals will show many points in common: thus the five-rayed *ambulacra* on the back of the *Amphidotus* represent the rays of the starfish; and when we place a large number of species, recent and fossil, under review, the passage from the most branching starfish to the roundest sea-egg may be clearly made out through a beautiful gradation of forms. * * * The family of Echinidæ, to which these animals belong, was much richer in forms in the earlier world than it at present appears to be; and from the great facility with which the hard parts of the shelly integument may be preserved, the remains of these creatures have come down to us in a very perfect state. The study of them, therefore, is quite as interesting to the geologist as to the zoologist. It is of importance to the former to know the habits of the living species, that he may form a judgment on what those of the extinct kinds may have been, and thus arrive at just conclusions on the circumstances under which the rocks and gravels, where their remains are preserved, have been deposited. Of

the sub-tribe of heart urchins (*Spatangaceæ*), very numerous species, many of them of highly curious and elegant forms, exist in the oolite and the chalk, and abound in many tertiary deposits. They all characterise marine strata, and generally indicate shallow parts of the sea. Very few of the kinds now living have been found fossilized, except in deposits which are evidently of a recent date. Thus in these, as in other races of animals, there have been successions of species, each marking its own era.

“Among the common productions of sandy shores several species of zoophytes present themselves, generally in a dead state, the fleshy parts having wholly disappeared, leaving merely the skeleton or skin behind. These skeletons often resemble sea-weeds, both in the plant-like forms they assume, and in bearing along the branches little membranous sacs, which look like minute flowers or seed-vessels, and are, indeed, organs of a similar nature, being the ovaries in which the germs of the young polypes are contained. From sea-weeds the skeletons in question may always be known by their horny or bony texture, and their generally pale, testaceous colour. There is but one group of sea-plants, the jointed corallines, which so far resemble some of them in being hard, and indeed stony in substance, as to lead to their being commonly confounded, even by naturalists, with skeletons of zoophytes. But these are rock plants, which we shall speak of in another chapter. Most of the zoophytes, also, are natives of rocky places, or of shingly ground, such as oyster-beds, beyond the reach of the tide. And it is only the species which are accidentally thrown up by the waves which we meet with on strands. Of these, one of the most common is *Flustra foliacea*, * * a much-branched species, of a papery substance and dirty-white colour, flat, and built up of innumerable little oblong cells, placed back to back, like those of a honey-comb, and each crowned (as may readily be seen with the help of a pocket-lens) by four stout spines. It is these spines which give the surface of the *polypidom* (as the plant-like body is called) its peculiar, rough or harsh feel, observable if the finger be passed over the surface from the apex toward the base.

“This structure of cells (*polypidom* or leafy-body) is not the remains of a single animal, but of a community of individuals as numerous as those of one of our cities, each of which dwelt within the narrow compass of one of the cells, in which he was born, lived and died. This cell was his house, more literally his skin, within which he enjoyed an independent existence, at the same time that he was linked, by a common circulation, to the cells above and below him; and thus had a double existence, being at the same time himself and a part of ‘the neighbours;’ or rather, a part of a compound animal represented by the *polypidom* itself, and whose individuality is exhibited by the regularity of its growth; just as a plant, which may be considered as a community of separate leaves, proves its individuality by the orderly manner in which those leaves are arranged. The life enjoyed by this common *Flustra* may be taken as an example of that of a class of animals to which it is related, the compound polypes whose remains, recent and fossil, constitute an enormous portion of the fossilized crust of the earth. The general form and structure of the individual polypes may be illustrated by the largest members of the group, the sea Anemones, whose flower-like bodies are seen expanded in every rock-pool left by the tide. The little polypes which dwelt in the cells of the *Flustra* were animals of a something similar form, though different structure, each crowned with a star-like flower; and the whole together exhaled an odour, when fresh, compared by some observers to that of the orange, by others to that of violets, and, again, to a mixture of the odour of roses and

geranium. The sea has its gardens as well as the land, and their denizens more wonderful, for the flowers of the sea enjoy animal life.

"It is common, in speaking of coral banks and islands, to attribute the formation of these vast submarine deposits to the work of the polypes, and to extol the industry of the little creatures in building up monuments whose vastness leaves the pyramids an immeasurable distance behind. And, in some sense indeed, coral islands are their work; but scarcely in a higher sense than peat-bogs may be said to be the work of mosses, or the coal-fields those of other classes of vegetables. In speaking of coral islands as the work of the polypes, we lose sight of the fact that the island itself is one vast polypidom, all whose living parts have, in the aggregate, as much individuality—so far as they consist of a single species—as the polypidom of the *Flustra* we have been examining. In coral banks several species unite together, and each, of course, preserves its individuality; but it is quite conceivable to suppose a single species, forming a single mass, and gradually constituting a bank or island. Now, the growth of the insular mass no more depends on the will of the polypes, of whose branches it consists, than the growth of any other skeleton depends on the will of the animal whose organs secrete it.

"A very common zoophyte, frequently thrown up on sandy shores from deep water, very different in aspect from the *Flustra*, but belonging to a neighbouring family of animals, is what is commonly called dead men's toes or hands (*Alcyonium digitatum*). This constitutes a fleshy, semi-transparent mass, coated with a tough orange-coloured skin, and exceedingly sportive in shape: sometimes forming a mere crust on the surface of the shell to which it adheres; at other times pushing up a trunk which divides into finger-like branches. As it lies on the shore it certainly offers few inducements from its beauty, to recommend it to further notice; yet it is one of the many natural productions which only require to be looked at with a moderate attention to elicit from them much that is curious and beautiful in structure. If a piece of this zoophyte, newly cast up, be placed in a vessel of sea-water, it will soon acquire favour in our eyes. The tough, orange skin, when closely looked at, will be found studded with innumerable star-like points, each furnished with eight rays, and marking the orifice of the cell in which a polype is lodged. When the polypidom has remained a while in the water, its polypes, if still alive, will gradually protrude themselves from the starry points, pushing out a cylindrical body, clear as crystal, fluted like a column, and terminated by a flower-like, eight-rayed mouth; the whole surface, at last, becoming densely clothed with these animated flowers. The unsightly aspect of the trunk, which reminded us of fingers or toes, is now forgotten, just as we forget the fleshy branches of a Cactus when we see it clothed with its gorgeous flowers. Nor is the internal structure of our zoophyte less worthy of examination and admiration. Not to speak of its minute anatomy, a simple longitudinal section, if examined with a moderate lens, will reveal a complicated system of inosculating canals, which form a sort of circulation through the mass, by connecting with the rest of the body the polype cells, which are placed immediately under the outer skin. These tubes are bound together by a fibrous net-work, and lie imbedded in a transparent jelly, which forms the fleshy part of the compound animal. The eggs are lodged in the tubes, and at length discharged through the mouth. Such is the simple structure of these animals, which are nevertheless arranged with as much care and nicety, in proportion to their organization, as we find in animals much higher in the scale of being."—p. 41.

Inquiry as to the best mode of preparing Skeletons.—If some of the contributors to the 'Zoologist' will, through its pages, be kind enough to give some instructions as to the best method of preparing skeletons, they will confer an esteemed favour on myself, and perhaps others also. Dissecting some of the smaller animals by the knife is very tedious. I have often buried my specimen in an ant-hill for that purpose, but invariably before the work was completed have I lost it—I suppose by some predatory animal. I have thought, in these days of chemical knowledge, some of your correspondents might know of some substance that would destroy the flesh without injury to the bone.—*Joseph Duff; Bishop's Auckland.*

[Carrying out the plan of employing ants as the anatomists, the animal may be placed in a perforated tin box or canister.—*Edward Newman.*]

Can the Ferret exist in a state of Nature in England?—Mr. Bird asks (Zool. 2440) if the ferret can exist in England in a state of nature. On this point I am not able to answer him in a positive manner; but it is my opinion that it can, for which I will give my reason. Six or seven years ago I kept ferrets for the purpose of destroying rats: on one occasion, having put a ferret into a rat-hole, I lost sight of the animal for about a week, when he was found wandering in a plantation in search of food: this happened in cold weather. Some time after I lost him again, and he was not heard of for a fortnight; but was at last found near some rabbit-holes, half a mile from the place where lost.—*E. Peacock, Jun.; Messingham, Kirton Lindsey, May 7, 1849.*

A Rat killed by a Frog.—As James Ashworth, who resides at Gravel Hole, near Thornham, had occasion to go into a plot of ground, in which is a pool of water, his attention was drawn to a rat, which plunged into the water and swam nearly across, but suddenly disappeared: he then went round the pool, thinking it might have taken refuge under some brink of the water, but being unable to rouse it he was about leaving the place, when, to his great astonishment, he saw—at a few yards from the side—the rat dead, although still warm, with a large frog holding it by the throat.—*Communicated by F. Webster.*

Is the Water Rat (Arvicola amphibius) entirely Herbivorous?—Can any of the correspondents of the 'Zoologist' inform me if the common water rat is entirely herbivorous in its habits; or if it does not now and then, just for a treat, feast on a young duck or chicken?—*E. Peacock, Jun.; Messingham, Kirton Lindsey, May 8, 1849.*

Whistling Mouse.—A remarkable fact has lately come under my notice, of the authenticity of which I have not the slightest doubt. A family, residing in this county, frequently heard in one of their rooms a shrill whistle, resembling in tone and power the highest note of a canary. At first little notice was taken of the circumstance; but its repeated occurrence, and the sweet trilling note, sometimes loud and piercing, at others dying away in the softest cadence, led to an investigation, and, much to their astonishment, the delightful little songster was discovered to be a mouse. They frequently saw it as it crossed and recrossed the room, and, as if conscious that he afforded amusement to his listeners, appeared in no haste to retreat. This continued for about two months, when, workmen being employed to do some repairs to the room,

the little fellow disappeared, and was never afterwards heard.—*John Collins; Kirkburton, Huddersfield, May 19, 1849.*

[Several singing mice have been exhibited in London. See an account of one I visited in 1843 (Zool. 288).—*E. Newman.*]

Whistling Mice.—"Much has been written of late years about singing mice (whistling mice would be a better term). There is nothing particularly new in the discovery, for I well remember, when a boy, being, with the rest of the family, repeatedly summoned by my brother into the cellar, to listen to the performance of one of these little musicians. The whistling, which was varied, though low, was evidently a voluntary act, and seemed peculiarly indicative of ease and enjoyment; for when at all startled it immediately ceased; nor did it recommence till the little creature resumed its composure. This was heard at intervals for many weeks; and a few years after a similar instance again occurred."—*A Paper on the Study of Natural History, by W. D. King, p. 15.*

The Birds of Melbourne. By J. J. BRIGGS, Esq.

THE migration of birds is so important a feature in the natural history of any district, that I shall make no apology for alluding to it frequently in my investigation of this. Naturalists in general appear to have paid more attention to the arrival than the departure of birds, yet both are equally important. This defect has arisen, no doubt, from the greater degree of difficulty which attends it,—a circumstance I have previously pointed out (Zool. 440). During the course of many years, I have observed that our earliest spring visitor is the chiff-chaff, our latest the spotted flycatcher. The arrival of birds appears to be more influenced by the state of the season than by any other cause; yet be the weather ever so fine about the usual period of arrival, and though vegetation has considerably advanced in its progress, if the moon be not at the full their arrival will be delayed until it is. The arrival of certain birds may be foretold to a day or two, by a person who keeps a journal of rural occurrences, and then turns to an almanack and ascertains at what particular time in April the moon is at the full. Thus, for instance, I know the swallow arrives here somewhere about the middle of April; and if a full moon occurs about the 15th, I am pretty confident to see him a day or two either before or after. The following coincidences have struck me:—the chiff-chaff usually arrives a little before the larch is visibly green; the willow warbler when the willows are in infant leaf, and the wood warbler when the oak and elm are budding: when the gooseberry is in full leaf the garden warbler appears, and the blackcap scarcely ever before the hawthorns are expanded: the yellow wagtail arrives

generally when spring corn is sown, and first frequents fallow ground ; and the landrail when the vegetation of hedgerows has just sprung sufficiently high to hide it : the Hirundines appear when flies become pretty abundant ; the cuckoo when the weather becomes pleasant and sunny : the sedge and reed warblers rarely visit us until the rank flags and reeds are a foot high, and afford them concealment. I think that the males of most species arrive some days before the females ; and all birds seem to commence their cries and songs immediately on their arrival.

Osprey (*Falco Haliaetus*). See Zool. 553.

Peregrine Falcon (*Falco peregrinus*). See Zool. 553.

Hobby (*Falco subbuteo*). See Zool. 553.

Merlin (*Falco Æsalon*). See Zool. 644.

Kestrel (*Falco tinnunculus*). Called the 'standing hawk,' from its habit of hovering or remaining almost motionless over its object of prey.

Sparrow Hawk (*Falco nisus*). The late Mr. Bowman, who was keeper to the Right Hon. Lord Viscount Melbourne, communicated to me the following anecdotes, which show the fierce and daring disposition of the sparrow hawk. He was once out shooting, when he sprang a covey of partridges, out of which he killed two birds, and wounded a third, which lay bleeding on the ground and still in a death-flutter. A sparrow hawk, which had either sat perched on a neighbouring tree or was hovering overhead, beheld the captive, and, instantly descending, seized the partridge, and was bearing him away in his talons, when a second gun being levelled at him he was brought to the ground. On another occasion, a snipe being wounded and flying with difficulty to a sedge-brake, a sparrow hawk pounced upon it, and, within thirty yards of Mr. Bowman's gun, bore it away triumphantly. A labouring man, in this parish, was taking a nest from the top of a tree, and had put the eggs into his hat, which he held in his hand, when the old birds came home, and, perceiving the intruder, dashed at him with great fury, beat their wings about his face, and made him loose the eggs, which fell to the ground. This hawk is not uncommon here, but since the more strict preservation of game his ranks have been thinned by the gamekeepers.

Kite (*Falco milvus*). Sometimes seen sailing over our grass fields, at a considerable height, and in a steady and graceful manner.

Buzzard (*Falco buteo*). Occasionally trapped at Donnington Park : the latest bird was killed in 1845.

Hen Harrier (*Falco cyaneus*). See Zool. 645.

Eagle Owl (*Strix bubo*). Several have been killed hereabouts, but none in this parish. One shot at Shardlow in 1828.

Long-eared Owl (*Strix otus*). Rather scarce in these parts. One seen near Gorstey Leys, November 29; and another shot here November 24, 1844.

Short-eared Owl (*Strix brachyotos*). Migratory, but irregular in its visits. Arrives in the autumn, somewhere about old Michaelmas day, and departs about the middle of March. It frequents the most exposed parts of the country, caring little for woods, rarely settling on trees. It destroys mice, reptiles, and numbers of beetles, which it procures principally in turnip-fields. October 15, 1838: one killed close to Melbourne.

Snowy Owl (*Strix nyctea*). On May 20, 1841, I observed in the meadows a majestic and beautiful owl, almost as large as an eagle, which I have no doubt was a bird of this species. It departed in a few days, after baffling the endeavours of several persons to shoot it.

White or Barn Owl (*Strix flammea*). Breeds in the old oaks of Donnington and Calke, and comes down to our low meadows towards evening to feed, beating them over with exactness and care. In a neighbouring village is a barn which has in its interior a small wooden box, of dovecote-like appearance, which a pair of owls has occupied for a great number of years. Year by year they live unmolested and undisturbed, being encouraged rather than otherwise on account of their predatory propensities. Hundreds of individuals have been reared in this spot, but it is never occupied by more than one pair at the same time; for no sooner is a brood fully fledged and able to maintain itself, than a pair of the strongest drive the rest of the family from the spot, and occupy it themselves. Their larder is supplied on a most baronial scale. The floor of the place is a foot thick with the indigestible parts of their food, which are reproduced from the stomach in pellets or castings; and it may be perceived upon what food they feed by the bones and refuse. Their favourite food is rats, mice, sparrows, buntings, and beetles, and on this account are truly valuable about farms. They deposit their eggs without nest on the castings, and I have found as many as eight. Snowy nights oblige owls to seek for food in barns and out-buildings: if unmolested they soon clear them of rats and mice. Their name, I think, must be derived from the dismal noise they make in the night. The word 'owl' was formerly, perhaps, written 'howl.'

Tawny Owl (*Strix stridula*). Haunts our woods and copses, especially the young plantations of Donnington, and sometimes the largest

oak trees in the hedgerows near them. It sleeps most of the day, if not disturbed, on a bough near the bole, and its plumage serves in some measure to conceal it from observation. Its favourite food is hares and rabbits, and when these are not at hand it captures water-rats, moles, and various kinds of field-mice; but it rarely takes the latter when the former are to be obtained. I have examined many pellets cast up beneath some favourite tree, but they were generally composed of the fur of rabbits and hares: they are usually shaped like a pear, being enclosed in a tough husk or covering, resembling brown paper when dried, but immediately after ejection from the stomach are wet and slimy, and on that account more easily effect a passage through the throat. They remain with us the year round in limited numbers, and keepers find them very destructive to young game.

Little Owl (*Strix passerina*). Once or twice has occurred in this neighbourhood, but not very recently.

Great Gray Shrike (*Lanius excubitor*). Very rare.

Red-backed Shrike (*Lanius collurio*). A pair shot July 25th, 1848, which had just reared a nest of young.

Woodchat (*Lanius rutilus*). I have a note of observing a woodchat, May 19, 1839, operating upon a yellow bunting, which it had firmly impaled to a thorn: the entrails were eaten, and the bird half-plucked. It appeared rather shy, and deserted its prey as I approached. I have never noticed the red-backed shrike to butcher small birds.

Spotted Flycatcher (*Muscicapa grisola*). This bird chooses the most singular situation for its nest, and the partiality it displays for any particular spot year after year is most remarkable. For more than twenty years a pair built a nest on the branch of a pear-tree which was trained up our house; and another pair, for nine or ten successive springs, built their nest on the hinge of an out-house door in a neighbouring village. The people upon the farm were continually passing and repassing through the door, yet in every instance the birds succeeded in rearing their brood. Another pair built their nest on the branch of an apricot-tree that grew immediately over the entrance-door of a house, which, whenever it was opened, occasioned the birds to fly off the nest.

Pied Flycatcher (*Muscicapa atricapilla*). During the whole time that I have paid attention to ornithology, I have never seen this rare bird but once.

Dipper (*Cinclus aquaticus*). Of all the feathered visitants which

severe weather brings to us the dipper is the most engaging in his habits and manners. Parties come here occasionally through the winter, and depart as spring approaches. I imagine that the bulk of them breed on the brinks of our more northern streams,—such as the Dove, the Wye, and their smaller rocky tributaries,—and then come down to the Trent after the breeding-season is over, keeping moving along those streams which fall into the Trent (and so adjourn until fine weather appears next spring), in our less rigid locality. I always notice them in the greatest numbers when the most severe weather occurs. In the winter of 1841 they appeared upon the Trent in considerable numbers, the river being partly frozen over, and snow lying on the ground fourteen inches deep. In 1844 I observed ten birds, but throughout the mild winter of 1846 no dipper was seen. Sometimes when the Trent is partly frozen over they may be seen on the ice, but their motions are clumsy and inelegant; and when perceived they hurry, as well as they can, towards the liquid parts, and bury themselves from sight. When they are swimming on the surface, and find themselves discovered, they usually dive and come up *once* to the top; but if the person continues in sight they again disappear, and are not seen that time for a very long period. The migration of the dipper is certainly regulated very much by the seasons. If winter sets in about October, they reach us during that month, and stay a few weeks; and if it increases in severity they proceed lower down until the frost disappears, and then come again: but if no frost appears until about January, they come at that time, and remain until spring. The greater part depart about March, but an occasional straggler sometimes remains the summer through, but has never been known to breed. Their manners are very pleasing when the birds are seen in the distance; but owing to the width of the stream, and the little screen afforded by the banks, it is impossible to observe their manners under water: still during a snow, when few animals are abroad, their lively forms—now momentarily seen as they emerge from the clear blue waters, and then dropping instantaneously from the sight—add animation to the scene, and are very agreeable adjuncts to the river. Mr. Jordan states (Zool. 450) that the dipper sometimes sings in winter. Those birds which visit us are quite mute. The dipper when alarmed on ice will occasionally make use of its wings.

Missel Thrush (*Turdus viscivorus*). Sparingly scattered over our more open meadows and uplands. Sometimes called the ‘holm thrush,’—I suppose from a habit it possesses of frequenting low holms or willow-holts occasionally: called also ‘thrice cock.’ If the

missel thrush is listened to attentively, whilst engaged in song, he will, I think, generally be heard to give forth three distinct notes together; then leave a short pause; then three notes again, and so on: the cock bird is the chief songster, who essays his powers in the early spring to induce a partner to join him: and this is the reason, perhaps, why most country people call this bird 'thrice cock,' from the male giving forth his thrice-repeated note.

White's Thrush (*Turdus Whitei*). In certain seasons a thrush comes here, which—from the descriptions given by authors—I suppose to be *Turdus Whitei*. These birds are met with in company with redwings and fieldfares, are very difficult to shoot, about the size of the song thrush, but heavier. On October 25, 1847, some appeared at the same time with the song thrushes; but I was not sufficiently fortunate to shoot one.

Song Thrush (*Turdus musicus*). It is now some years since I paid attention to the migration of the song thrush, and I have now no hesitation in recording the fact. Every autumn, sooner or later according to circumstances, but always just when the leaf is falling, our neighbourhood is visited by numbers of thrushes: the most ordinary observer would almost notice this circumstance, for it is very apparent from the increased quantity that are feeding in the bottoms of hedges, by copses, and even amongst turnips in the open fields; nevertheless these thrushes, unless passing over, are not in flocks, but in parties of from two to five or six. If you wander by a brook fringed with thorn and alder bushes, which is a very favourite haunt, you will notice that from the first bush you get to perhaps will spring up two or three thrushes: as you proceed, the next bush will furnish two or three more, and so on; so that, should you follow the course of the brook for a mile, you will find that you have started several hundred, although never more than four or five may take wing at one time. The greater part of these stay perhaps a week or a fortnight, and then disappear, leaving, however, a considerable number behind, which stay till spring. Occasionally flocks pass over on the wing, taking a south and south-easterly direction, as if on the way to their winter quarters. A flock perhaps consists of sixty or seventy birds, which generally keep compactly together, like starlings, making steadily for their destination, and not alighting on any object. Sometimes they fly very near the ground, almost within gun-shot. I have no doubt that numbers every year leave the forests of Scotland and the North, as pointed out by Mr. Jordan (Zool. 493), and repair to the warmer counties of England on the southern border. The habit which thrushes have of

breaking snail-shells against a stone has been noticed: their adroitness in this accomplishment I have often observed, and I have seen a favourite stone in a wood against which many thousands must have been broken; indeed the refuse shells lay round the stone some inches thick, and scattered in greater or less quantities for several feet. I have seen a tame thrush which would eat house flies with avidity, and the earnestness which he exhibited when a person was feeding him with them was truly amusing. These birds sometimes commence their songs at nightfall, and I have heard their music when I could scarcely distinguish either bush or tree. My journal contains records of my having heard this bird during all the winter months except December.

Redwing (*Turdus iliacus*). Heard one in May, 1843, give forth a wild melodious warbling, in tone not unlike the mellifluous music of the blackbird. Redwings are most plentiful down the Trent meadows, owing to the greater luxuriance of the hedges, which afford them fruit, and the greater amount of grass-land, which supply them with slugs, snails, &c. When the water has overflowed our low grounds these birds are constantly feeding in them, and after such periods are plump on the breast and in excellent condition. During mild weather they roost on the ground, and in willow-beds and sheltered situations when the weather is severe; and I think that a small party nestles down together, keeping their tails in the centre, like partridges: I infer this from the position of the droppings which are left in the morning. During the mild winter of 1846 exceedingly few redwings appeared. October 25, 1847:—Redwings have been passing southwards for several days: four or five flocks pass in a day, consisting of from one to two hundred birds; and each flock takes exactly the same line, which is over a particularly high tree that is often used by them as a resting station: almost every flock, as it approaches a certain part of the air, appears to meet with some impediment (probably an adverse current of wind), for it is invariably driven backwards, but as invariably doubles again and makes a vigorous effort to regain the original line of travel, which is due south. I mention this circumstance to show that the birds must have a very clear knowledge of the precise geographical position of the locality to which they are journeying.

Fieldfare (*Turdus pilaris*). If severe weather sets in early, fieldfares are earlier in their arrival; and if the weather continues open and mild towards spring, and wild fruit is plentiful, it will continue here until the last week in April or beginning of May. Few birds, however, are more regular in their time of arrival than these: they

appear about a week or ten days after old Michaelmas day : indeed, when we consider the amazing distances migratory birds have to travel, the accidents to which they are liable, the adverse winds they have sometimes to encounter and the rough weather they have to brave, the accuracy of their comings and goings is almost miraculous. If a table were kept year by year of their motions on these occasions, perhaps they would not be found to vary a fortnight in a hundred years; and yet what seas, rocks and continents have many of them to traverse ! I had once an opportunity of seeing a flock of fieldfares immediately on their arrival, and they appeared completely worn down by fatigue, yet comparatively the distance from their native Norwegian forests is very short. Not a bird had been visible in the neighbourhood before, and on going my rounds I observed a large flock, which, after wheeling about, took possession of some tall oaks. Although generally shy, they allowed me to approach them within about twenty paces, seeming to take little notice, but immediately descended on some hawthorn bushes and ate the fruit greedily. When departing, in spring, the flocks are sometimes very large. On February 26, 1844, an assemblage took place here, consisting of redwings and fieldfares, which covered the tops of twelve trees. Fieldfares exist here in smaller numbers than redwings, flock together less, and feed almost exclusively on the fruit of the wild rose. They are partial to watercourses and drains, apparently going there to drink; and snipe-shooters bag a good many, killing them as they rise from the water's edge. Both this bird and the redwing are here called 'feldifare,' but the former is distinguished from the latter by the name of 'pigeon feldifare,' on account of its larger size and lighter coloured plumage.

Blackbird (*Turdus merula*). In the autumn these birds resort to turnip-fields, to feed on the slugs. I have put up seventeen from one field. In hard winters they feed on the scarlet berries of the *Piracantha* tree, even when trained close to a house door.

Ring Ouzel (*Turdus torquatus*). Breeds on our northern Derbyshire streams, and is occasionally seen when crossing our parish on its periodical passage.

Hedge Accentor (*Accentor modularis*).

Redbreast (*Sylvia rubecula*). The redbreast is a bird so engaging in his manners, so sprightly in his actions, so confiding in disposition, that no wonder he is almost universally known and a general favourite. He is associated with the rambles of childhood, when the woods were green and pleasant sights greeted the eye and pleasant sounds the ear; and we remember him also as the welcome petitioner, who, when

winter had stilled his song and ruffled his plumage, came hopping to our door, lightly printing the untrodden snow in his footstep, and upturning ever and anon his eye to solicit a boon "with that mute eloquence which passeth speech." No bird seems so equally distributed over this district as the redbreast. Let a man shoulder his spade and go forth into the woods or far-off fields, and commence upturning the fresh moist mould, and quickly from the tree that overshadows him will descend this welcome guest to share his solitude and procure an humble meal. He hops and looks and looks and hops with fearlessness and familiarity,—picks up the writhing worm or close-rolled chrysalis, and seems peculiarly shielded from harm under man's protection. His appetite appeased, he again ascends the tree and repays his benefactor with a song.

During the breeding-season they fight most obstinately; and I once saw a conflict between two males in which one left his antagonist on the ground quite dead. On January 2, 1844, the snow was six inches deep, but a redbreast was in full song. Young birds hatched in spring make an essay at singing about the middle of August—oftentimes before they have received the red tinge on their breast. Their first essays are of a low, pleasing, inward, warbling character, but towards October they become tolerable songsters.

Redstart (*Sylvia phœnicurus*). Two or three pairs may be found here every summer. The young are fed with soft green grubs. After the breeding-season they retire from the village and are little seen.

Stonechat (*Sylvia rubicola*). Before Melbourne Common was enclosed this bird remained here all the year, wintering amongst the gorse and fern and hillocks made by the rabbits. Since that period its numbers have considerably decreased, and it is now only known as a very rare summer visitant. It frequents the coldest clay lands or bleak uplands; and if startled, makes a short undulating flight, settling again upon the most prominent clod of earth, uttering at the same time its melancholy notes. One killed here on December 13, 1844, on the common, the weather being intensely cold and frosty—a circumstance which doubtless forced the bird to leave its more northern haunts.

Whinchat (*Sylvia rubetra*).

Wheatear (*Sylvia ænanthe*). A few pairs reach us annually; but cultivation is fast banishing this bird from our fauna. They formerly abounded amongst the rabbit-warrens on the common, and bred in the deserted holes. Now they frequent the meadows at a distance from the village; and having fixed upon a certain spot, rarely wander

a hundred yards from it that summer. The same parts are chosen by them annually. Small parties touch here on their autumnal passage. They commence their nest about May 15; it is composed of dried grasses, lined occasionally with a few patches of hair. They are very pretty denizens of the pastoral parts.

Grasshopper Warbler (*Sylvia locustella*). Rare, but met with in the least frequented and wildest parts.

Sedge Warbler (*Sylvia salicaria*). Reach us often in a very exhausted state. In 1843 I noticed a pair fluttering about in a grass-field, so fatigued with their journey that I nearly picked them up with my hand. In May, 1845, one was picked up dead, having flown against a window in the night, and could not recover itself. They arrive in small parties of from two to five or six birds at once. I once took a nest curiously enwoven of gardeners' matting, which is sometimes left on the banks of the Trent by floods. The young birds may be seen about June clinging to and fluttering about the reeds and sedge, and keep sometimes with the parents after leaving the nest.

Reed Warbler (*Sylvia arundinacea*). A few pairs come annually to breed in the small reed-beds which skirt the outlets of the Trent, and visit the same parts annually. There is a particular bed in which a pair has bred for fifteen years. Nest contains eggs about June 20, sometimes by the 14th, and is built in the thickest part of the reeds, which afford the best concealment. I have found it suspended between four, five and six reeds. One season floods came and spoiled the nest three times, but the birds persevered and built a fourth. The nests of birds of the first and second years have not the finished neatness of those which are built at a more advanced age. Sitting aslant on a dead reed the birds pour forth their hurried song with great rapidity, seldom hushing it for any length of time during the twenty-four hours. A pair killed, May 30, 1848.

Nightingale (*Sylvia lusciniæ*). The nightingale visits us every spring, coming to a large wood of 500 acres on the outskirts of the parish; but I have never known more than one bird killed here. On May 4, 1848, a person brought to me a little bird which he had shot off a furze-bush on Stanton Hiles, a rough uncultivated piece of ground covered with bushes. He told me that "he had got a bird like a big sparrow, which he was sure when alive would have beat all England for a bit of music," and forthwith lugged from his capacious velvetreen the creature that was to astonish me. I soon discovered in its person a specimen of this "Jenny Lind" of songsters.

His attention was attracted to it by the superb melody which it uttered; and not being aware that it was so admired a bird, he lay in wait to kill it. Never having heard such exquisite notes before, he was induced to listen to them for a considerable time, and described most enthusiastically "the doubling and redoubling of her voice." Sometimes they seemed emanating from the bushes below, sometimes from the trees above; sometimes near, at others distant; but always delightful. It proved to be a fine male. The nightingale hushes his notes on cold damp nights, but is heard to perfection on those which are still and warm: he commences about ten o'clock, and continues at intervals until towards three in the morning; but his song does not attain full power immediately upon its commencement. They love woods of thick undergrowth. I had once an opportunity of seeing a beautifully constructed nest of the nightingale: it consisted of oak and beech leaves, externally arranged—with much neatness and regularity—around the soft dissected leaves of the poplar. It was found in a wood, on the ground, situated in a shallow hole made by the foot of a huntsman's horse during the previous winter.

Blackcap Warbler (*Sylvia atricapilla*). In 1845 I recorded each day when the blackcap's song was heard, and found that he commenced on May 3 and continued almost daily to June 14.

Garden Warbler (*Sylvia hortensis*). This sweet sylvan bird is very sparingly distributed here. I have heard his song up to August 2. He keeps pretty close to the village, hiding himself amongst hollies, laurels, the thick bushes of shrubberies, or the vegetables of horticultural grounds. His wild and singularly flute-like melody renders him one of the most attractive visitants, and he richly deserves the praise which naturalists have heaped upon him.

Common Whitethroat (*Sylvia cinerea*). Abounds in all the sylvan and pastoral parts.

Lesser Whitethroat (*Sylvia sylvicola*). Quite as numerous as the former. Amongst the eggs which are annually taken by our village boys, those of this bird form a distinguished proportion. They are sad enemies to our gardens and vegetable fields, eating with avidity red currants, peas, and raspberries. His song ceases here about June 18. The young are hatched about July 7.

Wood Warbler (*Sylvia sylvicola*). The wood warbler, willow warbler and chiff-chaff are all confounded together by country people, and called by the name of 'bank jug.' The first name is derived from the situation of the nest; the last from its habit of skilfully hiding it from observation. A partridge is said to 'jug' when it

cowers or squats down on the ground. The wood warbler is sparingly scattered over the champagne country, but pretty plentiful in the woods of Calke and Donnington, though it is not found in all our woods. It is certainly a delightful little bird. His song is neither musical nor varied, and yet it is so clear and wild that it seems a fit accompaniment to the unfolding spring: if watched during its delivery, the delicate musician seems gently agitated; he shivers his wings, stretches his silken throat, and appears to undergo considerable emotion: he gives forth his notes, then waits a few moments, picks up a grub from a leaf or examines a blossom, and then gives out again the same series of sounds. His song ceases July 12.

Chiff-chaff (*Sylvia hippolais*). The chiff-chaff haunts the Donnington woods, the thickets about Calke, and the tall noble pine trees in Melbourne gardens, coming oftentimes before the trees have made an effort to bud, and continuing with us until the fall of the leaf, and occasionally afterwards. He is a blithe, cheerful bird, throwing off his two notes—which fall most pleasantly on the ear—on the tops of the tallest trees: when they are heard we have the assurance that fine weather is at hand and early flowers are springing. He keeps close to the woods during the summer, and is rarely to be seen in the champagne parts of the neighbourhood. During the mild winter of 1846, I was frequently on the listen to catch the notes of this merry bird, thinking he might be induced to linger with us; but neither then nor in any other genial winter could I detect his existence in this neighbourhood.

Dartford Warbler (*Sylvia provincialis*). A pair was shot off the top of a furze-bush half covered with snow, on Melbourne Common, during some very severe weather, in the winter of 1840. The birds appeared hardy and lively in their manners.

Gold-crested Regulus (*Regulus auricapillus*). In Melbourne gardens these birds are very abundant, even in the severest seasons, sporting on the tops of the loftiest pines, haunting the noble evergreens, and in summer hanging their curious nests on the lower sides of the yew-branches. They are amusive, interesting little birds, hopping about the plants and bushes, twisting themselves in fantastic attitudes, and displaying to advantage their burnished crests. Towards December we receive accessions to our resident birds, which in particular seasons cause these birds to be very numerous. They depart again towards March. During summer the resident birds keep much to woods, and are little seen, but towards October creep out into the open country, and seem partial to low alder and willow-

bushes, which skirt our streams. They examine branch by branch in a careful manner, in order to pick from the crevices any insect or grub which may lie enfolded there: whilst pursuing these operations they give utterance to a delicate pleasing song, which I have heard even in mid-winter. Two nests have been found attached to the same branch of a yew-tree.

Fire-crested Regulus (*Regulus ignicapillus*). An individual of this species was certainly shot here in 1838.

Great Tit (*Parus major*). Common in old woods and parks, especially where decayed oaks, elms and maples abound, from which they may be seen pulling the moss and lichens to procure the insects which lie beneath. Its notes are recorded in my journal as being audible generally about January 20.

Blue Titmouse (*Parus cæruleus*). The number of insects which these birds consume during the breeding-season is truly surprising. I have observed a nest to be visited by either male or female generally three or four times in ten minutes, each visit bringing some grub or insect to the young. The old birds hang in a skilful manner with their claws upwards, to procure insects rolled up in the under part of the leaves of plants and trees. So nimble are they during this operation, that having once alighted on the stem of a plant—be it ever so fragile, and although it bends from its perpendicular until the end almost touches the roots—the bird rarely quits his hold until he finishes his examination of the leaves. I have known a pair breed in the same hole for twelve years. Another pair occupied the hole in the wart of a tree, the female sitting on the eggs until the wart was sawn off, when I took her up in my hand.

Cole Titmouse (*Parus ater*).

Marsh Titmouse (*Parus palustris*). Frequents old willows. Rarely seen in the upland or hilly parts.

Long-tailed Titmouse (*Parus caudatus*). Seen most frequently in winter in small parties. Their minute forms and deeply-marked and ruffled plumage have a very pretty appearance when contrasted with the cheerless sprays which they frequent. They breed here before the hedges are in leaf.

Bohemian Waxwing (*Bombycilla garrula*). Appears in flocks in winter, at uncertain intervals. Twice taken here.

Pied Wagtail (*Motacilla Yarelii*). Some stay the whole year; others depart after the breeding-season, and arrive again towards March. Those that winter here frequent sheepfolds and newly-ploughed grounds, but have not that "neat and clean" appearance

which marks those that visit us in the spring. In the latter, the light parts of their plumage are of more snowy whiteness, and the dark parts of a deeper black: they may be readily distinguished by these characteristics. Previously to the departure of the migratory portion (which consists chiefly of young birds) after the breeding-season, they roost at night on the thorn and alder bushes by our small rivulets. Where the bushes grow thickly together, fifty or sixty birds may be startled in as many yards; and I have no doubt they collect together in this manner for the purpose of migrating in a party.

Gray Wagtail (*Motacilla boarula*). Some few remain here the summer through, but the greater number may be considered winter visitors. I have never seen a nest. During the mild weather of winter they haunt the rapid streams or drains in irrigated meadows; but when frosts occur they draw nearer to the village, frequently coming about sinks and gutters, close to house doors, and perching on the tops of houses.

Gray-headed Wagtail (*Motacilla neglecta*). November 23, 1846: one killed near Melbourne.

Ray's Wagtail (*Motacilla flava*). October 13, 1846: noticed one so late in the season as this,—an unusual occurrence, as they usually leave in September. In my mind this bird is always associated with the different spring operations of husbandry, for he invariably appears when such take place. During the sowing of barley they may always be seen in the field sporting lightly around the industrious teams, taking short flights from one clod of earth to another, moving their tails with a buoyant fan-like motion, and delightfully displaying to the sun their brilliant yellow breasts. Their nests are found by agricultural labourers when weeding young corn, about the middle of May, placed on the ground. On May 12, 1845, I noticed by the Trent eight individuals of *M. Rayii*, *all males and in one party*, which I considered singular, as the generality had paired and were occupied with nests and eggs. They might have been birds just arrived. One autumn I counted seven, which seemed to be a family party on their way southwards.

Tree Pipit (*Alauda trivialis*). See Zool. 658.

Meadow Pipit (*Alauda pratensis*). Freely distributed over the meadow grounds in summer, and uplands in winter, at which latter season it is found amongst sheep which are folded on turnips. They commence their song frequently in February, which gives additional interest to a pastoral district. "December 16, 1846: very severe frost and some snow. Larks and meadow pipits have nearly all dis-

appeared; probably gone southwards. A few days ago some pipits were picked up just alive, owing to the severe weather, apparently not having strength either to get further south or to bear the rigour of these parts. Their bodies were complete skeletons." On the occurrence of snow they usually leave us.

Sky Lark (*Alauda arvensis*). See Zool. 658. "February 8, 1845: to-day a large fall of snow. Many large congregations of larks passed southwards." "March 1, 1848: large flocks of larks came to this neighbourhood (consisting of thousands): they fed upon the leaves of field cabbages and frequented gardens that were at any distance from the village." In some seasons they commit serious damage to newly-sown wheat-fields (more particularly if sown late), pulling up the blade just when it is springing from the ground, more for the purpose of getting at worms at the roots than feeding on the plant.

Wood Lark (*Alauda arborea*). This sweet bird is apparently becoming more rare here every year, and now is but very thinly distributed over the upland parts that are studded with copses.

Snow Bunting (*Emberiza glacialis*). December 19, 1846: snow buntings were seen in the neighbourhood.

Common Bunting (*Emberiza miliaria*). Partially migratory, and breeds. During the summer months they may be seen perched on almost every hedgerow hereabouts, and are contented with their quarters so long as any corn remains, either standing, cut, or even ungleaned, but the great body of them leave when the corn is taken away, some half-dozen stragglers occasionally remaining for many weeks after the main body have departed. On January 14, 1844, I observed one here, and also on February 4, 1845; but they are rarely seen at Christmas. They disappear in small parties of from five to ten birds, keeping together a short time before departure; but appear by single birds.

Black-headed Bunting (*Emberiza schoeniclus*). Many depart in autumn and appear in spring, but many also remain, and when pressed for food in severe weather come to ricks and farms to feed with chaffinches. On June 3, 1842, as I was fishing by the margin of the Trent, my attention was arrested by the rustle of something in a clump of sedge near to which I was standing, and scarcely a moment had elapsed before a bird crept slowly from the herbage. It fluttered along the ground in a curious zigzag manner, as if lame and wounded, its right wing trailing on the ground and appearing to be broken. I followed it to some distance; but when I approached too near it flew in the natural manner a few yards further, and then dropped its wing

as before. Presuming that it was one of those ingenious stratagems to which birds resort when their nest is in danger, I looked in the sedge, and found a nest: the bird no doubt feigned to be wounded in order to attract my attention from its treasure.

Yellow Bunting (*Emberiza citrinella*).

Chaffinch (*Fringilla cœlebs*). Our winter congregations consist of both sexes. They will feed on the seeds of the radish, cress, lettuce, mustard, carraway and flax, and are a great nuisance to our horticultural grounds.

Mountain Finch (*Fringilla montifringilla*). In May, 1840, I noticed one hopping on a piece of fallow ground. In 1839 I saw one which had been shot out of a flock that had come to feed at a rick-yard; and on February 9, 1845, I had three specimens sent to me which had been killed at Weston Cliff. The latter were all males, in fine plumage. Snow was on the ground and the weather very keen, and doubtless the birds were forced southwards to us by stress of weather.

Tree Sparrow (*Fringilla montana*). Common, but less numerous than the house sparrow. They flock with buntings and chaffinches in winter, and frequent farmsteads. One killed March 13, 1845, near Newton. Eleven taken by one person with a bird-net, on March 30, 1846, near Foremark, where it is plentiful, owing to there being plenty of wood for the birds to breed in. Their nests are found in the heads of pollard-trees, or holes in sound timber, and they manifest considerable obstinacy in quitting a spot in which they have been accustomed to build. Some boys found a nest in a stunted elm, which they pulled from its hole with a stick and fish-hook, and took from it five eggs. The birds built another, in which they laid four eggs: this shared the same fate. Lastly, they deposited three more eggs in the same hole, without any nest, and reared their brood. They have eggs about the end of March.

House Sparrow (*Fringilla domestica*). From January to September, 1848, — 4579 sparrows were sent to the "Melbourne Sparrow Club."

Greenfinch (*Loxia chloris*).

Hawfinch (*Loxia coccothraustes*). During the winter of 1846 the hawfinch was occasionally seen in this neighbourhood, and one was killed from a flock near Repton.

Goldfinch (*Fringilla carduelis*). Small parties of goldfinches remain here throughout the year, wintering upon the pastures at some distance from the village, picking up a scanty maintenance upon the

few thistles which have escaped the scythe and run to seed. The seeds of this plant are here their principal support; and I am pretty sure, since a closer attention has been paid to mowing it before running to seed, that the goldfinch has decreased in numbers, the supply of food being cut off. Towards the second week in April they appear again in considerable numbers; and I am convinced, from repeated observation, that they then exceed those wintering here by ten to one. Ten or twelve may be seen together. It might be argued that the birds, which during the winter have dwelt apart from villages, now draw nearer for the purpose of breeding, and so bring themselves more constantly beneath the eye; and this may in some measure be true, but still I am quite sure that an accession of numbers takes place in spring. Small parties are seen in almost every lane and field, and a pair or two nest in almost every orchard. They are particularly partial to the seeds of the elm-tree as a lining for their nests. When a brood is to be reared for the cage, the nest and young are taken from the branch and put into it, and hung on the tree, where the old birds find them, and bring food (feeding them through the wires of the cage) until they are able to provide for themselves. If not strictly looked after at this period the young birds die, and a singular notion prevails amongst country people that their death is caused by poison which is brought to them by their parents. The real cause of death no doubt is that they are abandoned by the old birds when fully fledged, as in the wild state, and not having the means as in that state of providing food for themselves.

Siskin (*Fringilla spinus*). Small parties occasionally make their appearance in winter at uncertain intervals, but rarely stay many days, and never pass the summer here. Flocks visited us December 9, 1844, February 1, 1845, and January 18, 1846. They keep close to the streams, feeding on the alder-seeds, and are very familiar. They seem to appear when the weather is most severe, and I have noticed them on the alders when they have been whitened over with hoar frost. Their chief business seems with those trees, for they rarely settle on the neighbouring thorns or willows.

Common Linnet (*Linota cannabina*). Linnets congregate in autumn, sooner or later, according to circumstances, but never later than October or earlier than August. If the spring has been favourable, and they have been enabled to bring out their broods early, large flocks may oftentimes be seen by the middle of August and corn harvest. These congregations consist of many hundreds, which rove from field to field in order to pick from amongst the corn the seeds of

wild plants (especially the charlock), to which they are very partial. When the corn is harvested, they repair to stubbles until the ground is winter-ploughed, when they are driven to seek food from the seeds of trees: those of the ash seem their favourite, and I once fell in with a flock so busily feeding that I killed seventeen at one shot. "April 9, 1844: I have long noticed that a particular field, always when on the plough, is visited by a very large flock of the common linnet: they repair to it in the autumn, and continue there until the following spring. Until last year I could not account for their singular partiality to that particular spot, when I imagined that I discovered it. These birds, as I have stated, subsist chiefly on charlock seeds, and as that field towards May is completely yellowed over with these flowers, I think they must repair thither in search of food. If this is their object, such a body of birds, continuing there for so long a time, must prove of infinite use in freeing the ground from these noxious weeds. From minute observation I cannot discover that they touch the larger grain, nor have the crops of those which have been shot contained any corn whatever; so that this harmless bird ought to be accounted one of the most serviceable of its species to British agriculturists." Since writing the above I have seen particular fields affected with charlock, visited by hundreds (thousands I might almost say) of these diminutive creatures, for months together.

Lesser Redpole (*Linota linaria*). Mr. Yarrell considers Halifax, in Yorkshire, "the southern limit of its breeding in this island." I have twice known it to breed here. The nest was fixed on the top of a stunted, mossy hedge, in one case, and contained eggs on June 14; and the birds, whilst building, would allow a person to approach them within three or four yards, without displaying the least fear: indeed fear does not seem to be part of their nature, if one may judge by circumstances. I shall not easily forget once falling in with an immense flock, which occupied some alders by the river Derwent, during a severe winter: they were in thousands, making the catkins seem quite alive as they expertly crept under and over them incessantly. Having a gun I pitched a shot into the whole party, and expected that every bird would have taken wing at the report, but they were "not to be frightened from their propriety." Six of them fell dead, but the rest fed quietly on, as though nothing was amiss; and their obstinacy was such that the party seemed as if they would stay to be annihilated rather than quit their feeding-stations. Flocks visited us on March 8 and November 20, 1844. They come at uncertain intervals in hard winters.

Mountain Linnet (*Fringilla montana*). A pair bred in the summer of 1840 on a rocky bank called Anchor Church, a few miles distant from Melbourne. The nest was found in June, built in a low bush of bramble and furze, about two feet from the ground, and contained five eggs. This is the only instance which has come to my knowledge of the appearance of this bird here.

Bullfinch (*Loxia pyrrhula*). As the villages hereabouts are almost belted with orchards, the bullfinches commit serious damage upon gardeners and horticulturists. They frequent our gardens about February, and prefer the buds of the cherry, plum, damson and gooseberry, and pass over the currant, apple and pear with little molestation. They are particularly fond of stone fruits. I have seen a single bird clear more than a dozen twigs in a very short time: he commenced at the bottom of each twig, twisting off every bud until he arrived at the top, when he moved to another. They certainly prefer the *blossom* buds. Towards spring they seek the plantations and woods to breed, and are little seen.

Crossbill (*Loxia curvirostra*). Crossbills have been shot off some fir trees in a small planting on Melbourne Common. They were stripping the fir cones and cracking them for the seeds.

JOHN JOSEPH BRIGGS.

Melbourne, Derbyshire.

(To be continued).

On useless Records in the 'Zoologist.'—There is one subject to which I wish to call the attention of the writers in the 'Zoologist,' namely, *to be sure that their notes really record something new, or at least worthy of record.* I had intended to notice this on the receipt of the March number, containing an account of the capture of a polecat in Suffolk, of a bittern near Bury, and a curlew on Foulmire, recorded by Mr. Newton in that number: now the polecat, I will venture to say, is to be found on most rabbit-warrens; in some parts of Suffolk it is far too common. The bittern, though rarer than before the marshes were drained, cannot be considered as an extraordinary bird; and the curlew is not at all rare on any of the inland meres. The consequence has been that one or two of your correspondents have gathered that these animals are rare in Suffolk, and think it worth while to record their appearance in their own counties. Mr. Newton, however, has been fairly surpassed, in the June number, by Mr. Burroughes, who gravely records the death of a tufted duck, the commonest of all the lobe-toed Anatidæ in our inland waters; nor can his other note of the capture of the rough-legged buzzard be considered as worthy of remark. I would not wish to disparage the efforts of my brother naturalists in the common cause, still less to discourage a young naturalist like Mr. Burroughes; but when erroneous

notions as to the scarcity of birds are likely to arise from their recording circumstances of no importance, I would wish them to pay more attention to the abundance or scarcity of the animals whose occurrence they record; for by neglecting this they encumber the pages of the 'Zoologist,' and, I am sorry to say, expose its supporters and friends to ridicule, from those who are prompt enough to note an occasional blot, while unable to appreciate what is really good and useful in it.—*H. T. Frere.*

[My contributors will perhaps appreciate the difficulty I feel in rejecting papers which have been written with the double motive of obliging me and of recording what is supposed to be a novel and interesting fact. I also labour under another difficulty, in common with all residents in large cities,—that of being supposed incapable of forming any judgment about rural matters. I have occasionally written to correspondents whom I have thought made communications that were rather unimportant, and not unfrequently have I declined such communications altogether; but I think I may say that my reputation as a competent editor of the 'Zoologist' has invariably suffered in such cases. Under these circumstances I can do nothing better than request contributors to ascertain—by corresponding with competent naturalists in their own counties—the value of such observations as may be of doubtful interest or novelty, before sending them for publication. I entirely agree with the Rev. Mr. Frere; and feel much obliged to him for the matter as well as manner of his note.—*E. Newman.*]

A Gamekeeper's Stratagem.—I have lately seen a curious method of attracting magpies practised at Peasemarsch. The keeper procured a live hedgehog, and suspended him by one leg to a tree or shrub. All the magpies within hearing of poor piggy's cries came to see what was the matter, and in half an hour six were shot. The keeper then went to another part of the wood to practise his ingenuity; and I returned home wiser than I went.—*J. B. Ellman; Rye, June 13, 1849.*

Moths in Birds' Skins.—In reference to the communication of Mr. Duff (Zool. 2451) and your comment thereon, I would beg to observe, that although baking the skins effectually destroys all the larvæ or eggs for the time being, yet it by no means prevents the moth from again visiting the same skins. The plan which, after some years' experience, I have found most effectual for preserving my specimens, is to bake the skins twice a year, in spring and autumn, and during the summer months to keep them in tight drawers, with a sponge dipped in turpentine placed in a corner of each drawer. My method of baking is to place the skins in a Dutch oven, or (if large) in what is called a meat screen, and expose them to the front of the fire for a few minutes. I think Mr. Duff will find this a more safe, clean and convenient plan, than that of putting them in an oven, and I should think more effective than when the skins are wrapped in a cloth; and there is no necessity to take out wires or tow.—*W. F. W. Bird.*

Peregrine Falcons (*Falco peregrinus*) *at Beachy Head.*—I brought home with me to-day three of the young of those very interesting birds, the peregrine falcon, which were taken from their nest yesterday at Beachy Head, by a man who descended the perpendicular cliff with a derrick, about 250 feet, the height being at that part about 500 feet: the birds—a male and two females—are very fine. The man that obtained them said that round about their nest was literally strewed with all kinds of bones. I watched the parent birds to-day for nearly an hour with much delight, seeing them take their beautiful circular sweeps in the immediate neighbourhood of the recent abode of their young. If any of your readers should be passing, I should be most

happy to show them. The railway being now opened to Eastbourn, there is every facility for the lover of nature to have a rich treat, as the scenery is beautiful and boasting of an earthly paradise.—*Thomas Thorncroft* ; 33, *North Lane, Brighton, May 30, 1849.*

Occurrence of the American Greater Northern Shrike (Lanius borealis) near Aberdeen.—A specimen of this North-American bird was shot near Aberdeen, about the commencement of the present year, and was exhibited at a meeting of a natural-history association, in the city now mentioned, by Professor Macgillivray. That eminent and most accomplished naturalist remarked, upon the occasion, that the bird in question had never, so far as he was aware, been previously met with in Scotland, nor, in all probability, in any other part even of Europe. The specimen was a male: it was for a considerable time confounded by naturalists with our own cinereous shrike (*Lanius excubitor*), of which, indeed, it may be regarded as the representative in the New World. A good distinction for practical purposes will be found between them, in the circumstance that in the American male there are *two* small bars of white on the wing, whereas in the European there is but *one*. We are informed by Dr. Richardson, that the *Lanius borealis* is found, in considerable numbers, amid the wooded fur countries, as far as the sixtieth parallel of latitude; and, moreover, that it spends the winter in these remote and inclement regions. In the *Fauni Boreali-Americana* (vol. ii. p. 111) there is a coloured lithograph of the female, by Mr. Swainson: it is marked by that exquisite softness, that natural outline, and that life-like expression and attitude, which are so conspicuous in almost all the ornithological drawings which proceed from his pencil.—*James Smith* ; *Manse of Monquhitter, June 16, 1849.*

Occurrence of the Pied Flycatcher (Muscicapa luctuosa) near Norwich.—The pied flycatcher, which generally visits this district in very small numbers at this season, appears to be occurring this year in greater abundance than usual, as many as nineteen specimens having come under my notice since the 9th instant,—all killed within thirty miles of Norwich.—*J. H. Gurney* ; *Easton, near Norwich, May 17, 1849.*

Blackbird's Eggs sucked by a Rat.—About three-weeks ago a blackbird built its nest in the ivy, on a wall close to the house: it laid one egg, which soon afterwards was broken: from the situation of the nest and from the season it is not probable that a cuckoo sucked the egg: what, then, could it be? Since that time a robin has built its nest in the ivy, some feet nearer the ground: it laid five eggs, and was sitting. This morning, on going to the nest, I saw in it what at first I took to be a kitten: it proved, however, to be a large rat, which escaped on seeing me: all the eggs were gone; and as I distinctly saw the rat in the nest, I now attribute both robberies to him.—*Robert Wayne* ; *Wenlock, May 19, 1849.*

The Ring Ouzel (Turdus torquatus) supposed to be nesting in Worcestershire.—A male ring ouzel was killed at Kidderminster on the 9th of May last. Two others, supposed to be nesting, were seen a short time previous, at Witley, in the same county, and one of them (the male) was shot.—*W. F. W. Bird* ; 5, *King's Row, Bedford Row, June 6, 1849.*

Singular Nidification of a Robin.—In the spring of last year, a small watering-pot, hanging in a potting-shed, at Woodbines, Kingston, was selected by a robin as a suitable locality for her nest, where she sat and reared her brood, undeterred by the many curious visitors who came to look. The gardener, to prevent the nest being "poured out," inscribed below the pot, in chalk,—*"There is a robin's nest in this pot, so please do not take it down."* The inscription remained after the birds had flown;

and the robin again this year visited the spot, and, finding the pot hanging above the "taboo," thought it a safe speculation again to occupy it, and accordingly made another nest,—thus again safely rearing her progeny. It will be curious to see if she should return another year.—*J. F. Christy ; Stangate, June, 1849.*

Occurrence of the Minor Grackle (Gracula religiosa) in Norfolk.—On my observation, headed as above, and dated January 23rd, the editor expressed his opinion (Zool. 2391) that this, being not even a European bird, must have escaped from an aviary. By stating a few facts connected with its capture, such opinions will, I think, appear to have less ground than at present. When first discovered this bird was accompanied by its mate; both were in distance one hundred yards from the sea, and evidently so tired that an attempt was made to capture them, which they avoided, proceeding inland. When next seen they were about a mile from the sea; and at Hickling, two miles from the same, the bird in question was shot. All this happened in the space of two or three days. From these statements one would naturally conclude they had migrated; first, because of their position, so near the sea; secondly, because of their condition, a state of weariness; and lastly, because of their proceeding inland, as would be the case with most migratory birds. Again, no aviary I believe exists (at least containing such birds) within twenty miles of the place in which these were first seen; and it seems curious that they should escape from a distant aviary and not be seen till approaching so near the sea, and that the owners of such (considering their value as Indian specimens) should make no inquiry respecting their loss. If the aviary was near at hand we should most probably have heard of the escape; if far distant, how could the deserters so long have avoided detection, especially in a place so open and ill-wooded as the above mentioned? The question which now remains, is, supposing a migration took place, what was the cause of such? This I can answer but indifferently, merely stating that strong south-east winds had been prevailing two days, and on the third the birds were discovered.—*W. E. Cater ; Queen's College, Cambridge, May 25, 1849.*

Occurrence of the Golden Oriole (Oriolus galbula) in Kent.—Two specimens, male and female, of this rare and beautiful bird were obtained near Elmstone last week, together with their nest (of very rare occurrence in this country), which was *suspended* from the extreme end of the top branch of an oak tree, and composed entirely of wool carefully bound together with dried grass: it contained three eggs, of a pure white, mottled with black. The note of the male bird precisely resembles the whistling of the common parrot, and is very powerful.—*J. B. Ellman ; Rye, June 5, 1849.*

Occurrence of a supposed new British Woodpecker near Whitby.—Shot near Whitby at the beginning of this year. Sex not determined. Beak narrow, slight and pointed, about as long as the head; a *tuft* of dirty yellowish white hair-like feathers projecting over each nostril. Crown of head, occiput and nape black. Lore black and white intermixed. A broad white band over each eye, extending to base of skull. Ear-coverts black. A white band from gape passing under the eye, and continued so as to form an almost complete ring round the back of the neck: beneath this is a black band from base of lower mandible to scapulars. Scapulars and upper part of back black: middle of back white, without spots or bars. Upper tail-coverts grayish black. Both sets of wing-coverts black, each feather with two or three roundish white spots on the outer and inner web. Quill-feathers black, slightly tinged with brown, with eight well-defined, rather elongated spots of white on the outer web, and rounded patches of white on the inner web, forming eight distinct bands: third, fourth, fifth

and sixth feathers *tipped* on outer web with white: shafts of feathers black. Four middle tail-feathers black, stiff and pointed: the next on each side black; terminal half white, occupying a larger space on the outer than on the inner web; two outer feathers on each side white. Chin, throat, breast, belly, vent and under tail-coverts white. Legs, toes and claws blackish. Length of specimen 8 inches. From carpal joint to end of wing $4\frac{3}{4}$ inches. First feather very short; second feather two inches longer than the first and one inch shorter than the third; third, fourth, fifth and sixth feathers nearly the same length, but the fourth and fifth rather the longest in the wing. There is not a trace of red on any part of the bird. The above-described specimen was bought by me as a variety of the great spotted woodpecker; but as soon as I began to examine it, the immense difference between it and the two described British species of black and white woodpeckers was very apparent. The great amount of white, the entire absence of red, and the size being intermediate between our British species, readily distinguish it from the great and little spotted woodpeckers; but not having any books of reference by me, I am unable to determine its species. (Query, what is the *Picus medius* like?) Now that attention has been called to it, perhaps it will be found to have occurred many times in England. When it came into my possession, portions of the flesh were still adhering to the wing and leg-bones and to the head.—*Edmund Thomas Higgins; York, June 2, 1849.*

[I have shown this description to two eminent ornithologists, neither of whom has decided on any species to which it can refer.—*E. Newman.*]

Nesting of the Great and Lesser Spotted Woodpeckers at Peasemars, Sussex.—I was informed yesterday that there was a nest of young ‘nuthatches’ in a plum-tree, in a garden at the above place; and, being anxious to obtain some young ‘nuthatches,’ I accordingly went to Peasemars last evening, and found the hole in which the said nest was placed, and which was not more than four yards from the house, to contain five lesser spotted woodpeckers, nearly full-fledged. I shot the old birds, and then took the five young ones, all of which are in my possession. A few days since I found in an ash tree a nest of the great spotted woodpecker, containing one egg: I obtained the female bird.—*J. B. Ellman; Rye, June 13, 1849.*

Occurrence of the Roller (Coracias garrula) in Sussex.—A specimen of the roller was shot on the 29th of last May, near Nutley, on the borders of Ashdown Forest. It proved on dissection to be a male; and a cockchaffer, with the remains of several other large Coleoptera, were found in its stomach.—*William May; East Grinstead, Sussex, June, 1849.*

Occurrence of the Ringed Plover (Charadrius hiaticula), Turnstone (Streptilas interpres), Spotted Crake (Crex porzana) and Grasshopper Warbler (Salicaria Locustella) in Cambridgeshire.—Three ringed plovers and a turnstone were shot on the banks of the Cam, in the second week of May, 1849; and in the first week of the same month, near Cambridge, a spotted crake and grasshopper warbler.—*W. E. Cater; Queen's College, Cambridge, May 25, 1849.*

Occurrence of the Purple Heron (Ardea purpurea) in Aberdeenshire.—I have ascertained beyond a doubt that a specimen of the purple heron occurred in the parish in which I reside, about the beginning of March, 1847. It came from the south-east, and alighted in a marshy piece of ground near to a farm-house, where it was shot. It was a large and very handsome bird, and measured five feet across from tip to tip of the expanded wings. As the individual by whom it was killed was much struck with the beauty of its plumage, and as he had never seen a heron of a similar

description before, he resolved on making a present of it to me. Previously, however, to his doing so, he sent it to a neighbouring village to be stuffed: while there it excited general attention and great admiration, people coming, even from a distance, to obtain a sight of it, and all of them declaring that it was the first of the kind which had come under their notice. The common heron, on the contrary, is of daily occurrence in this quarter, and is in consequence familiarly known to the most careless and unobserving. The person to whom it was sent had occasion to leave his home for some considerable time, before the process of stuffing had been properly completed, and on his return he found, to his mortification, that it had been all but gnawn to pieces by rats. Its remains are now in my possession. The play, in varying lights, of purple, red and green, along its plumage, or, as it was termed, its *glancing* colour, gave rise to much admiration among those who saw it while fresh and uninjured. From those books on natural history to which I have access, it would appear that the purple heron has not been hitherto recorded as having occurred in Scotland. In all probability a tempest of wind had driven it across from the opposite continent, amid the low-lying marshes of which it is said to be as abundant as its congener, the common heron (*Ardea cinerea*).—*James Smith; Manse of Monquhitter by Turriff, Aberdeenshire, June 15, 1849.*

Occurrence of the Squacco Heron (Ardea comata) near Penzance.—I expect that we have a good flight of these elegant herons in this neighbourhood. I have seen three individuals to-day in the hands of our naturalist, Mr. W. H. Vingoe. All these are males, one of which exhibits the occipital and dorsal plumes almost fully developed: the other two show the commencement of the growth of the plumes, some just appearing beyond the level of the general plumage, others actively progressing underneath, as pen-feathers. Another fortnight would have rendered the plumage of these birds beautiful beyond expression; and I am not without hopes that I shall succeed in procuring a bird in full nuptial livery. Two of the above specimens were procured by James Trembuth, Esq., near the Land's End; and the other was killed whilst perched on a tree, in the parish of St. Hilary.—*Edward Hearle Rodd; Penzance, May 15, 1849.*

Occurrence of the Night Heron at Scilly.—I beg to report the occurrence of the night heron at Scilly, which I received yesterday from Mr. James, the steward of the Islands. Another example was seen at the same time, and I believe secured.—*Id., May 19, 1849.*

Occurrence of the Little Bittern (Ardea minuta) at South Walsham.—A specimen of the little bittern has recently been killed at South Walsham in this county. On two or three successive nights, when sailing on the broad, we had heard a noise in the marsh at the side, resembling the bark of a dog, or more nearly the grunt a paviour gives when dropping his rammer. Though all the party were tolerably well acquainted with the notes of the marsh birds, this was a novelty to us. A marsh-man, however, recognized it as the note of the little bittern, one of which (at present in the possession of Mr. Jacy, of South Walsham) he had shot some thirty years before. I sent him a message offering him a price for the bird, and on Saturday night or early on Sunday morning he shot it, but took it to another person and sold it for the price I had offered, much to my annoyance and disappointment. It is something, however, to have heard this rare bird. When he shot the other it was after several attempts to get it to rise, in which he had failed: he then waited, and about four o'clock in the morning it rose spontaneously. The marsh is very shaky and wet; but, unless I had

made certain of obtaining the bird from the shooter, I should have watched on Friday night myself.—*H. T. Frere; Blofield, June 14, 1849.*

Occurrence of the Little Bittern near Manchester.—On the 19th of May last, a gentleman, who was out with a gun in the immediate vicinity of the Water-works Company's reservoir at Gorton, shot a very fine specimen of the little bittern, which is now in the possession of Mr. Harrop, bird and animal preserver, 13, Cooper Street, where it may be seen. There is no instance of this bird having been previously met with in this neighbourhood.—*Thomas Webster; Ormond Street, Manchester, June 11, 1849.*

Occurrence of Spoonbill, &c., near Yarmouth.—The following rather scarce birds occurred at or near Yarmouth, early in this month: a spoonbill (male), a pair of wood sandpipers, and one or two specimens of the Kentish plover. More recently a beautiful male specimen of that rare bird, the gray-headed wagtail (*Motacilla neglecta*) has been procured at Lowestoft.—*J. H. Gurney; Easton, near Norwich, June, 1849.*

Occurrence of the Spotted Sandpiper (Totanus macularius) near Bishop's Auckland.—A fine specimen of that rare bird, the spotted sandpiper, was shot by Mr. H. Gornal, animal preserver, on the margin of the river Wear, a little west of this place, and is now in my collection: it was shot early in April, and appeared to have arrived a few days earlier than the common sandpiper.—*Joseph Duff; Bishop's Auckland, June 16, 1849.*

Occurrence of the Black-tailed Godwit (Limosa melanura) on Guyhirn Wash.—Four beautiful specimens of the black-tailed godwit, in spring plumage, were shot on Guyhirn Wash, six miles from Wisbeach, on the 18th ultimo. It is many years since the godwit was seen on this Wash, at this season of the year.—*T. W. Foster, Curator; Wisbeach.*

The Landrail (Crex pratensis) remaining in England during Winter.—In the 'Zoologist' (Zool. 2419) it is mentioned that a landrail had been seen near Rye, in December, and that another occurred in February. This supports me in believing that, in many parts of the country at least, landrails do not migrate, but remain all the winter. I know of many instances of their being observed during that season in Orkney, and of their having been dug out of turf-dykes and peat-mosses in a torpid state. I mentioned several such cases in the first part of the 'Natural History of Orkney,' about a year ago, and have given also other facts and reasons opposed to their supposed migration.—*Wm. Balfour Baikie; London, May 22, 1849.*

Occurrence of the Gannet or Solan Goose (Sula bassana) near Wisbeach.—I have under preparation two fine adult male specimens of the solan goose, both of which were taken in this neighbourhood during the present month. The wind for some days previously had been blowing from the north-east, and the birds appeared to be in an exhausted state, so much so that in both instances they were taken by the hand. I have a third specimen, which was taken in 1843, in company with some tame geese.—*T. W. Foster.*

Occurrence of the Caspian Tern (Sterna Caspia) near Great Yarmouth.—A fine specimen of the Caspian tern was shot by Mr. Harry Barber, of this town, on Saturday morning, June 9th, on Breydon Walls, about a mile from Yarmouth. It is a remarkably fine bird, and measures from tip to tip of the wings 4 ft. 3½ inches, and from the tip of the tail to the point of the beak 22 inches. It is a male specimen in

full plumage, and is now in the hands of the stuffer. The last specimen shot near Yarmouth was, I believe, in 1839.—*W. D. Burton*; *Great Yarmouth, June 15, 1849.*

Capture of the Black Tern (Sterna nigra) at Chertsey.—A pair of black terns were killed at Chertsey, in Surrey, the week before last.—*W. F. W. Bird*; 5, *King's Row, Bedford Row, June 6, 1849.*

Occurrence of the Sturgeon (Accipenser sturio) at Wisbeach.—A specimen of the sturgeon, measuring 5 feet 10 inches, was caught in the Nene, about four miles below this town, on the 19th instant. The capture was quite accidental. Some fishermen had on the preceding evening placed nets across the river, for the purpose of catching flounders, or 'butts,' as they are here commonly called; and the royal fish, becoming entangled, was secured. A fine specimen, caught at the mouth of the river about sixteen years ago, is in the Wisbeach Museum.—*T. W. Foster, Curator; Wisbeach, May 23, 1849.*

Occurrence of the Marine Lamprey.—A fine specimen of this fish, which is rarely met with on the eastern coast, was caught in the river Nene, on the 22nd instant, at a place called the Dog and Doublet, midway between Wisbeach and Peterborough, a distance of more than twenty miles from the Wash. I purchased it, and have prepared it for the Museum: it is 30 inches in length, and 8 inches in circumference. This fish had no doubt come up the river for the purpose of spawning, it being a female and full of ova.—*Id.*

Capture of Cerura bicuspis at Preston.—I have great pleasure in recording the capture of a magnificent specimen of *Cerura bicuspis*, by my friend Mr. John Cooke, of this town: he found it at rest on the trunk of an alder, on the 14th of May last. This is the second British specimen on record of this truly elegant species; the first being taken about two years ago, in the same place, and at rest upon an alder, by Mr. James Cooper, formerly of this town. Mr. Cooke brought me this specimen alive, and has very kindly added this almost unique British species to my cabinet: *bicuspis* and *carmelita* are my best acquisitions this season. In my opinion the larva of *bicuspis* feeds upon the alder. I am led to believe this to be the case, because I have found empty cocoons of a *Cerura* on the alders this spring, and, moreover, there is no possibility of the larva travelling from any willows or poplars in the neighbourhood. All the British *Ceruræ* have been taken in this locality, and within a mile of the town.—*J. B. Hodgkinson*; 12, *Friday Street, Preston, May 27, 1849.*

On setting Micro-Lepidoptera flat.—On the cover of the 'Zoologist' for April appeared a notice that a certain triumvirate intended to set their Micro-Lepidoptera flat, in the continental fashion, for which intention they have been called "Depressariæ," "the three flats," &c. Well, that does not matter; three flats may indicate a major key, and these dissonant parties may hereafter learn our tune. I cannot tell

how the curved method of setting came to be adopted in this country: it certainly is not natural, and in small moths increases the difficulty of distinguishing characteristic markings, more particularly under a lens, as so small a portion of wing can be brought into focus. Let any one make trial of the two methods, and the comparative facility of observation offered by the new one will be at once apparent. On the Continent the flat system is universal. To accomplish the end proposed, I have cork, not less than $\frac{1}{4}$ inch thick, papered and fastened with glue to a board, with a groove to receive the bodies, varying from less than $\frac{1}{16}$ th to $\frac{3}{16}$ ths of an inch wide, and of proportionate depth. The moth, previously pierced, is then placed so that the pin is *upright*, and the wings are extended till they are at a right angle, in which position they are maintained by a small piece of *glazed* card on a pin. If, as is often the case, the wings will not stay in the proper position until these cards are put on, they may be held right by a pointed paper "brace," placed at the base of each. The moths should not be removed until perfectly dry: much of the bad setting seen in cabinets has arisen from this cause.—*J. W. Douglas*; 2, *Eton Grove, Lee, Kent, May 28, 1849.*

Partiality of Micropteryx calthella for other Flowers besides those of the Caltha palustris.—While searching this afternoon for this little gem, in a low marshy tract favourable to the growth of the *Caltha*, I discovered it not only on the flowers of this plant, but on those of an allied genus (*Ranunculus*), and on one of the *Stellatæ* (*Gallium cruciatum*).—*Peter Inchbald*; *Storches Hall, Huddersfield, May 24, 1849.*

Note on a Hive of Bees working without a Queen.—On June 15th, 1814, I had a swarm of bees. Two days after they were placed on the stool they appeared in a state of great confusion, running in and out of the hive and up and down the exterior with great anxiety, whilst at intervals the most profound stillness prevailed; and again the most lamentable notes were heard, peculiar to them only when they have lost a queen. Upon examination I found a fine young queen, well matured, dead upon the stool. Gradually they became more settled, worked a little, but not with the usual vigour, gradually diminished in numbers, and when taken in August the hive and its contents weighed 20 lbs., the season for the production of honey having been extraordinary. By close observation I found that they had not bred a single bee; but the combs were of the clearest colour, and the honey of the purest character I ever saw. No farina or egg in the cells. I never saw a single bee carry any pellets on its legs all the summer, and I never observed a single drone in the hive.—*John Green*; *Melbourne, Derbyshire, June 6, 1849.*

A certain indication of Swarming.—In 1844 I discovered the following curious indication of the time when a swarm was about to leave the hive, and have noticed it in every succeeding year. But in order to make observations correctly, it is necessary to have the apiary particularly clean and free from rubbish. It is well known that the cells in which the young queens are bred are closed at the top for some days before they emerge from them: when this takes place the sealing of the cells may be found on the settling-board or on the ground near the hive: these sealings are small and round (about one sixth of an inch in diameter), slightly concave, and of the same colour as a comb about a year old. As certain as these sealings are found (providing the weather be fine and genial) so sure will a swarm rise in the course of a few days: indeed, whenever I have discovered this indication, I have either had a swarm on the same day or within two or three days; and a greater number of these sealings will be found several days before a second swarm arises.—*Id.*

Singular Occurrence amongst Bees.—On July 4th, 1812, the following occurrence took place in a small apiary near Melbourne. A swarm rose in the forenoon, which was put into a hive: they continued there a few hours, and then came out again and returned to the original stock. The next day I suppose those that returned were killed and turned out of the hive by the original stock, for thousands upon thousands of dead bees lay strewn upon the ground. The original stock prospered and swarmed the next season.—*Id.*

Erratum.—Line 11 of the article “Interesting to Bee-keepers” (Zool. 2437), for 41 lbs. read 4 lbs.—*Id.*

Captures of Rare Coleoptera on Leith Hill, Surrey.—Having occasion to see a gentleman in this neighbourhood on business, last week, I took the opportunity of walking back to Dorking by this route, to see if it was possible to meet with any rarities in the entomological world: the season hitherto has been very bad, with a cold searching easterly wind,—which we all know is much against collecting,—so that I did not go with much expectation of success. On the side of the hill, a short distance from the monument, which I believe is situated on the highest point, by the side of the road, is a small sand-pit, about a yard square, which when I looked into it was quite alive with small Coleoptera that had fallen from off the heather, &c., above: it was quite deep enough to prevent the possibility of their getting out when once in. In a quarter of an hour I captured the following:—*Acalles ptinoides*, fourteen; *Trachypylæus Waltoni*, nineteen; *Mycronyx pygmæus*, one; *Omius brunnipes*, in profusion; *Leiosoma*, apparently a new species, being much smaller and narrower than *ovatula*, four; *Orobitis cyaneus*, one; *Strophosomus limbatus*, in abundance; *Agathidium seminulum*? in abundance; *Cryptocephalus Moræi*, one; *Chrysomela varians*, one; &c., &c. I afterwards swept the heath above; but the wind was so great, from the very exposed situation, I could meet with nothing. The geological construction of this hill is very remarkable: first of all, on the low ground, we have a stiff clay; then, as we ascend, a light loam; then sand; then peaty loam; afterwards sand; and finally, on the top, a mixture of all.—*Samuel Stevens*; 24, *Bloomsbury Street*, June 20, 1849.

Proceedings of the Zoological Society.

June 5.—PETER POLE, Esq., in the chair.

William Compton Domville, Esq., was elected a Fellow.

Certificates were read in favour of the Earl of Pembroke, William Pennell, Esq., and S. S. Teulon, Esq.

A report of Council was read, presenting a most favourable account of the progress of the menagerie, to which some important additions had been made during the past month: these included a pair of brush turkeys (*Talegalla Lathamî*) from Australia (this is the bird which was first known to make a great mound or hot-bed, in which the eggs are deposited and hatched by the heat generated by the fermentation of dead leaves, and of which the mound is composed); a specimen of the great kangaroo, from Australia; three lions, received by the Erin, from Malta; a pair of damans (*Hyrax capensis*), from the Cape of Good Hope; a Dshiggetai (*Equus hemionus*), from Cutch, presented by Sir Thomas Erskine Perry; &c., &c.

A bison calf was born in the gardens in Regent's Park, on Wednesday, May 30th. A large collection was announced as likely to arrive from Egypt at the end of the month.

A liberal present from the governor of Singapore was daily expected by the Strathedon.

The new reptile-house was opened on Wednesday last, and twenty-one different species of lizards and serpents were exhibited: it was announced that the corresponding members of the Society in Africa, South America and the West Indies, would make many additions to this part of the collection during the summer.

Proceedings of the Entomological Society.

June 4.—G. R. WATERHOUSE, Esq., President, in the chair.

Dr. Macdonald was present as a visitor.

The following presents were announced: 'Transactions of the Zoological Society,' vol. iii. part 6, and Proceedings of that Society to December, 1848, by the Zoological Society.

The following gentlemen were balloted for and elected: J. W. Dunning, Esq., as member; W. Michael, Esq., as subscriber; and Francis Swanzy, Esq., of Dix Cove, as corresponding member.

The Secretary read a letter from Mr. Westwood to the President, stating that after an attendance of five days at the Police Court, and four days at the Old Bailey, he had succeeded in recovering the drawings and coloured patterns of plates stolen from the Society's rooms in 1848, and which he now restored to the Society: the thief, he added, had been transported for fourteen years. An unanimous vote of thanks was passed to Mr. Westwood for the interest he had taken on behalf of the Society in this matter.

Mr. Westwood brought for distribution specimens of *Ilythia sociella*, which he had reared from the pupæ. He exhibited a mass of the cocoons which had been blown out of a tree, and remarked that these coverings were double, each one having a lining, and that both cases were unclosed at one end.

Mr. Westwood also exhibited specimens of *Ptinus Hololeucus* received from Mr. Hart, of Knightsbridge, who found them in open jars attached to his galvanic battery, in which a strong solution of silica was operated on by a galvanic current for a lengthened period; and Mr. Hart was firmly persuaded that these beetles were developed by galvanic agency. On this point Mr. Westwood observed that the notorious *Acarus Crossei* had been produced without galvanic power; and it appeared to be the opinion of the meeting that there was no ground whatever for Mr. Hart's belief.

Mr. Weir exhibited a collection of Micro-Lepidoptera, taken within the last month near Tunbridge Wells, including some rare species; also a specimen of *Lobophora polycommata*, taken near Lewes, on the 4th of May.

Mr. Moore exhibited some eggs attached to feathers found in the aviaries at Knowsley. They appeared to belong to some unknown parasite on birds.

Mr. S. Stevens exhibited a fine bred specimen of *Hypena crassalis*: the larva fed on *Vaccinium*.

Mr. Douglas exhibited specimens of *Coccyx Strobilana*, *L.*, and read the following note of their habits: "Early in May, last year, Messrs. Shepherd and Waring took this species for the first time in this country, in a plantation of fir-trees, about a mile and a half beyond Croydon. I made several expeditions to the place in hope of getting it, but without success, until, on the 19th of May last, I saw it flying in plenty round the tops of the spruce firs, in the hot sunshine, between the hours of 10 and 1, and not afterwards. As the trees are 20 feet high, the handle of my net should have been of proportionate length: as it was I could only capture one occasionally, as it by chance descended within reach. Later in the day I beat the trees all round, but without obtaining one: hence I conclude that it remains and breeds on the top branches. Mr. H. Doubleday considers, and I think rightly, that this species is the true *Tinea Strobilella* of Linneus. *Tortrix Strobilana* of Haworth is the same as *Pseudotomia fraternana* of Stephens, and is found on oaks. It resembles the present species, but is smaller, and has not so many metallic markings. It is the *Coccyx splendidulana* of Guénée."

Mr. Douglas also exhibited a specimen of the true *Retinia turionana*, *L.*, a species very rare in this country. He had beaten it from a Scotch fir at Wickham, on the 27th of May. At the same time and place he took one of *Micropteryx Allionella*, *F.* (*T. ammanella*, *H.*), a species that appeared to be more rare in the south than the north of England.

Mr. Shepherd exhibited a remarkable variety of *Arctia villica* and specimens of *Coccyx Strobilana*, of which he had reared one from cones of spruce fir, one of which he showed. The larva had fed in the centre, changed to a pupa about two inches from the apex, and, when ready to emerge in the perfect state, had worked its way to the exterior along the tube it had previously formed.

Mr. Westwood read descriptions of two new exotic Coleoptera.

The Secretary read a paper by Mr. Desvignes, on *Macrus* and *Coleocentrus*, two of Gravenhorst's subgenera of *Ichneumons*, and exhibited specimens taken by Mr. Desvignes at Vienna.

Mr. Waterhouse read descriptions of two new beetles from the West Indies, which he proposed to call *Cryptorhynchus Batatae* and *Tricorynus Zeæ*.

Mr. Bond said that a dealer was selling pupæ of *Deilephila Galii* as British, but there was good reason to believe they had been imported from the Continent, and he wished to put collectors on their guard.—*J. W. D.*

Proceedings of the Microscopical Society of London.

April 25.—GEORGE BUSK, Esq., President, in the chair.

The minutes of the preceding meeting were read and confirmed.

Certificates in favour of Joseph Bainbridge and Samuel Gurney, Esqrs., were read, and ordered to be suspended in the meeting-room.

T. Hudson, Esq., Gideon Mantell, Esq., LL.D., R. Hodgson, Esq., and J. Mathieson, Esq., were balloted for, and duly elected Fellows of the Society.

A paper by George Shadbolt, Esq., being 'A Description of a new form of Hair, from a species of *Tarantula*,' was read. After some preliminary remarks on the interesting nature of the study of the various forms and structure of the hairs of animals,

Mr. Shadbolt stated that those he was now about to describe were taken from a specimen of one of the Tarantulidæ, in the possession of a friend, which had been found alive amongst some logwood, but whose original locality he had been unable to ascertain. The creature is entirely covered with short closely-set hairs, of a dark brown colour, excepting on the abdominal portion, where they are dark red: among these some longer hairs of a light brown colour are pretty plentifully interspersed. The dark brown hairs, and also the longer ones from the thorax, when examined with the microscope, present the appearance of a central shaft, with numerous small hairlets covering the whole length, and presenting very much the appearance of a mouse's tail. Those from the dorsal part of the abdomen are, however, the most remarkable and curious, being extremely compounded in their structure, and having more the appearance of feathers than of hairs. They consist of a central shaft, formed somewhat like a flattened cylinder, having a number of slight lateral appendages near the base. These are succeeded by a number of flattened blades, situated in the same plane as the former, having their free ends pointed and inclined towards the apex of the hair. Beyond these the shaft is covered with a considerable number of slightly elevated, obtusely pointed projections, which incline towards the base of the hair, being in the opposite direction to those before mentioned. These again are succeeded by six flattened blades, similar to those in the lower part of the shaft, and in the same plane with them, but pointing towards the base of the hair, instead of the apex as in the former instance. Beyond these is a slight projection similar to a continuation of the shaft, which terminates the hair.

A second paper, by John Quekett, Esq., 'On a peculiar form of Elastic Tissue found in the Ligamentum Nuchæ of the Giraffe (*Camelopardalis Giraffa*).' The author, after noticing the principal kinds of fibrous tissues found in the bodies of the higher animals, went on to describe that known as the elastic, which occurs in the most marked form in the ligamentum nuchæ of the neck of certain animals, and in none on so extensive a scale as in the neck of the giraffe. In this animal the length of the ligament was 6 feet 2 inches, its weight being nearly 9 lbs.; and as a proof of its great elasticity, it was stated that immediately on its separation from one of its attachments it contracted to four feet. On microscopic examination the individual fibres presented the usual curled extremities, so characteristic of this form of tissue, but with the addition of transverse markings or striæ: the diameter of the largest fibres was about the $\frac{1}{300}$ th of an inch, while others occurred as small as the $\frac{1}{3000}$ th. The striæ were generally arranged at equal distances, and were of equal breadth, being on an average as far apart as the fibre was wide. The author then concluded by stating that as a striated form of elastic tissue had never to his knowledge been hitherto described by any anatomist, and as the true position of the structure in question would appear to be somewhat intermediate between muscular fibre and ordinary elastic tissue, he had thought proper to bring the subject before the notice of the Society.

—G. Busk.

May 23, 1849.—GEORGE BUSK, Esq., President, in the chair.

The minutes of the preceding meeting were read and confirmed.

A certificate in favour of Frederick Barber, Esq., of Camberwell, was read, and ordered to be suspended in the meeting-room.

Joseph Bainbridge and Samuel Gurney, Esqrs, were balloted for, and duly elected members of the Society.

Mr. Quekett read a paper 'On the Structure of Cartilage in the four great classes of Animals; being Contribution No. 2 on the Anatomy of Cartilage.' After giving a brief abstract of the former communication, in which the principal characters of cartilage in general were described, the Author went on to notice the most simple form under which it exists, viz., that of large more or less hexagonal nucleated cells that could be readily isolated from each other, as such formed the *chorda dorsales* of many fishes, both in the adult and in the embryonic condition. He then went on to describe the membraniform condition of cartilage, as it exists in the ears of male animals in which the cells were generally well-defined and collected together in a single thin layer, as in the ears of some species of the English bat, or sometimes into two or more layers superimposed, as in the mouse and rat. The Author then concluded by describing the different modes of arrangement of the cells in osseous fishes, and how such cells in them become ossified,—*N. B. Ward.*

June 20, 1849.—*N. B. WARD*, Esq., Treasurer, in the chair.

Frederick Barber, Esq., was balloted for, and duly elected a member of the Society.

The Secretary (*J. Quekett*, Esq.) read a paper 'On the Structure and Mode of Growth of certain Tissues and Organs of the Trout, as observed in Specimens produced by the Artificial Mode of hatching the Ova proposed by *M. Boccius*, and practised in this country by *Samuel Gurney*, Jun., Esq.'—*J. W.*

On the Purple Colour of the Ancients, especially considered in reference to its connexion with Natural History. By the Rev. *JAMES SMITH.*

THERE is no colour which is so much celebrated by Greek and Roman writers, and which is so familiar to classical scholars, at least by name, as that of *purple*. It cannot, however, admit of doubt that the Latin word *purpura*, as used by the authors of antiquity, must be regarded as a generic, and not as a specific, term. They were in the custom, it would appear, of applying this word indiscriminately to the extensive class of tints which is produced by the intermixture of red and blue; and to some colours, moreover, in which blue does not form an ingredient, at least to the outward appearance, and so far as can be ascertained by a common and an unpractised eye. This latter circumstance would seem to have been especially the case with the shade of purple, which was of all others the most esteemed in the ancient world, and which there is reason to believe, was reserved in the

more early ages for the robes of kings, and for the most solemn purposes of heathen worship. We allude to the double-dyed purple of Tyre. The richness and beauty of this famed colour were owing principally to the skill of the dyers in the city now mentioned, and partly to the excellence of the materials of which they had the command. It was the product, not of a vegetable, but of an invertebrate animal belonging to the division Mollusca. Discoveries of a recent date have indeed proved, in the most conclusive manner, that it was obtained from the juice in a small vein or sac, situated in the throat of the *Murex trunculus* of Linneus and Lamarck. It is said that one drop only of this precious liquid was all that could be got from each individual animal. When it was wished to produce the most brilliant and costly dye which art could exhibit, the juice of which we are speaking was used in conjunction with that which was procured from other shell-fish belonging to the genus *Buccinum*. This genus was so named either from the species of which it is composed having a resemblance to a trumpet (*Buccinum*), or to the human cheek when inflated (*Bucca*)*. They were met with in the clefts and fissures of rocks, whereas the *Murex*, or proper purpura, had to be fished up from the ocean; and on this account it had sometimes given to it the name of *Pelagia*, from the Greek word which signifies *the sea*. The wool to which this gorgeous purple was imparted was uniformly of the finest quality, and was, in all likelihood, purchased from the Nomad or shepherd tribes, which abounded in the vicinity of Tyre. The colour itself was of a highly durable character. In proof of this we are told by Plutarch, that, on making himself master of Susa,† in which was the palace of the Persian kings, Alexander the Great found in the wardrobe—so to speak—of Darius, his amiable but discomfited adversary, no fewer than five thousand talents‡ worth of purple of

* It is remarked by Pennant that *Buccinum Lapillus* produces a purple dye of a nature analogous to that of the ancients. This shell-fish is found in abundance on certain parts of our own shores, and in the same kind of locality as the *Buccinum* of the ancients. So far back as 1684, Mr. William Cole, of Bristol, produced a fine purple dye from a white vein in the head of this animal. He describes minutely the whole process which he went through. The colour in the last stage was, in his own words, “a fair bright crimson.” (*Penny Cyclopædia*, ix. 454).

† The ruins of this ancient city are, according to Major Rawlinson, still to be seen at Sus, in Khuisistan.

‡ If, as is most probable, the Attic talent is here meant, and if that talent was equal, as is believed to have been the case, to £243 15s. of our present money, the value of the whole purple cloth thus laid up must have amounted to the enormous sum of £1,218,750.

Hermione.* It had been laid up there for 190 years, and, nevertheless, it still retained, in all their freshness, its glossy and shining qualities: and the cause assigned to the conqueror for this remarkable fact was the circumstance, that the dyeing of the purple had been completed by means of honey, and that the shining lustre had been communicated by the application of purified olive oil (*di elaiou leukou*—Plutarchi opera: Francofurti 1595, fol., vol. i. p. 686). This passage, as well as some from other authors, would seem to indicate that the royal purple of antiquity had, as one of its peculiar characteristics, a certain play of colours, such, perhaps, in some measure, as what we see in our own times in shot silk; and, among the works of Nature, in the neck of the pigeon, and—to a greater and still more beautiful extent—in the metallic-like plumage of the African thrush or grackle (*Lamprotornis rufipennis*). Of Tyrian cloth thus double-dyed, it is said by Pliny:—"libra denariis mille non poterat emi," (Lib. 9, c. 39): a pound weight of it could not be bought for a thousand denarii, that is, for £ 35 8s. 4d. of our present money, reckoning the denarius—as the most accurate numismatologists are inclined to do—at 8½d. (Smith's Dictionary of Greek and Roman Antiquities, p. 325).

It is interesting to have some definite idea in regard to this, and to other shades of purple, which were celebrated in the ages of antiquity. It is very evident, however, that words, merely as such, cannot, on a subject of this description, communicate to our mind any precise, distinct and lasting perceptions: but if there are objects and appearances in nature to which these colours are likened by ancient writers, and if we ourselves have the power of beholding these objects and appearances in the same circumstances that they did, we shall be enabled, in this manner, to look on several of the identical shades of the generic term *purpura*, which the Romans and others were in the custom of admiring. On this point our greatest and principal authority must be Pliny, whose work on Natural History is an extraordinary assemblage of facts and observations, mixed up, as was to be expected, with the numerous and frequently the ludicrous fables, which were current at a period when physical science could scarcely be said to have made its appearance. In respect to the Tyrian dye, of which mention has already been made, he has, among many other, the

* Hermione was a city of Peloponnesus (Morea), on the northern shore and towards the eastern point of the Sinus Argolicus (Nauplia gulf). The purple, for which it was famous, is supposed to have been obtained from the *Murex trunculus*, modified perhaps by locality.

following words:—"Erat ejus summa laus similem esse concreto sanguini; aspectu nigricantem, in suspectu refulgentem. Unde et Homero purpureus dicitur sanguis," (lib. 9, c. 37): its highest excellence consisted in resembling clotted blood; of a blackish colour when looked at from above, having a shining brightness when held up to the light: whence, also, in Homer the blood is said to be of a purple hue. In his 'History of the Decline and Fall of the Roman Empire,' Gibbon, a writer of prodigious and very accurate information, observes in a note (vol. vii. p. 92), that the royal purple of the ancients had a strong smell and a dark cast as deep as bull's blood. The modern reader of the classics, it is, therefore, conceived, may obtain the most accurate and striking idea of the famous double-dyed purple of Tyre by going into a butcher's shambles, and by looking on the accumulations of clotted blood which may there be presented to his view. These, in the modern nomenclature of colours, may be perhaps characterized as of the deepest and the darkest crimson, where, from beneath a surface of almost jet black, there shines through a clear, luminous, and intense colour of blood. Of the strong smell emitted by this Tyrian purple, the principal cause is, in all probability, thus indicated by Pliny:—"In conchyliatâ veste tingendâ, jus temperatur aquâ, et, pro indiviso, humani potûs excremento" (lib. 9, c. 39):—a passage which the learned reader will be pleased to translate for himself. The smell in question would appear to have been of an offensive description, and it is not unfrequently alluded to by the satirical poets of antiquity. Thus in Martial (lib. 1, epig. 50), we meet with the expression, "*olidæ vestes murice*,"—garments smelling strongly of the shell-fish. In another part of his writings (lib. 4, epig. 4), when giving an enumeration of the most villanous smells of which he can think, he assigns a prominent place to the "*bis murice vellus inquinatum*,"—the fleece twice defiled by the shell-fish,—that is, a garment of double-dyed Tyrian purple. Wishing, moreover, to hold up to scorn, on account of her habits, a lady of the name of Philænis, the same sarcastic author exclaims:—

"Tinctis murice vestibus quod omni
Et nocte utitur et die, Philænis
Non est ambitiosa nec superba;
Delectatur odore, non colore."

Lib. 9, epig. 63.

Philænis is not ambitious nor proud, because, both day and night, she habitually wears garments dyed with the shell-fish. Her delight is not in the colour, but in the smell.

There is in Pliny another passage, through the information in which we are enabled to look on the same identical shade of colour as that which was esteemed by the Romans,—a purple of an excellent character. Speaking of indigo, and of the adulteration to which the article was frequently subjected, he goes on to say:—"Probatur carbone. Reddit enim quod sincerum est, flammam excellentis purpuræ; et, dum fumat, odorem maris." It is tested by means of a burning coal: for that which is unadulterated, gives out a flame of an excellent purple colour; and, while it is smoking, a smell of the sea. When employed as a teacher, I procured from London a piece of eastern indigo, the finest in quality which was to be had in the market: this was laid upon a small surface of iron made red hot: there quickly arose a flame of a very beautiful hue: the colour, so far as I can describe it in words, was an exceedingly rich lake, of great depth of tone, so to speak, and with a tinge, as it were, of black. It may be proper to add that the indigo, while burning, gave out, to a powerful extent, that smell of the sea which is noticed by the Roman natural historian. Vitruvius (lib. 7, c. 7) refers to a purple which was produced by cooling ochra usta, or burnt ochre, with vinegar made from wine. This particular hue of the colour under consideration may, therefore, likewise be still seen by ourselves, on going through the process which is thus pointed out.

There are other and numerous objects in Nature to which the epithet *purpureus* is applied by classical writers, and by looking on which we have it completely in our power to see and to identify a considerable variety of those shades of colour which were characterized among the ancients by the general name of *purple*. Thus in Pliny (lib. 14, c. 1) it is said,—"*Uvæ hîc purpureo lucent colore, illic fulgent roseo:*" in one place the grapes shine with the colour of purple, in another they are bright with that of the rose. There cannot be a doubt that the grape, thus spoken of as being of a purple colour, is the variety so frequently to be met with, which is of a subdued violet shade, especially before the delicate bloom with which it is covered is impaired or rubbed off. To the same purpose is the line in Horace:—"Certantem et uvam purpuræ:"—and the grape vying in beauty with purple (Epod. 2, v. 20). Pliny, moreover, makes mention of "*purpureæ ficus*," or purple figs (lib. 15, c. 18); of "*purpurea salix*," or the purple willow (lib. 16, c. 37); of "*purpurea viola*," or the purple violet (lib. 21, c. 11); of "*purpurea lactuca*," or the purple lettuce (lib. 19, v. 8); and of "*purpurea pruna*,"* or purple prunes or dam-

* This particular shade of purple may be observed in the fruit of the wild sloe

sons (lib. 15, c. 13). These last are referred to by Ovid (Metam. 13, v. 817) as "*nigro liventia succo*:" livid with darksome juice.* In describing the oyster, Pliny takes notice of its "*purpureus crinis*,"—its purple hair or filaments (lib. 32, c. 6); and to this same appendage there is applied by Martial (lib. 7, epig. 19) the epithet "*lividus*," that is, livid, or black and blue: hence it would seem that a darkish blue of such a description was regarded as one of the numerous shades of the colour to which we are directing our attention. To the sea, also, was given by the ancients the epithet of purple. Homer, in his *Iliad*, has the expression *kuma porphureon*,—the *purple wave* (lib. 1, v. 482); and frequently, as in his *Odyssey* (lib. 1, v. 183), he speaks of the *oinopa ponton*, which means literally the *wine-faced deep*.† We have reason to believe that the earliest wines were of a very dark colour, and that they had a resemblance to deep-bodied port, or to the black wine of Cahors, of the present day. In commenting on these epithets of Homer as applied to the sea, the scholiast Eustathius remarks that they are to be regarded as nearly synonymous with *black*, since, as he says, the colour of purple approaches to blackness. In Cicero, also, may be found expressions of a similar nature: "*Mare quod nunc, Favonio nascente, purpureum videtur*:" the sea, which, now that the west wind is arising, appears of a purple hue (4 Acad. c. 33). And, in a fragment preserved by Nonius (c. 2, n. 717), the same author puts the questions,—"*Quid mare? Nonne cæruleum? At ejus unda, cum est pulsa remis, purpurascit*:" What as to the sea? Is it not of an azure blue? Yet its wave, when it is struck by the oars, becomes of the colour of purple. The particular shades to which Homer and Cicero thus refer, may, in similar circumstances, still be seen by those who have the opportunity, in all the changes of weather, of looking upon the classical and the deep-tinted waters of the Mediterranean.

The shell called *Conchylum* appears to have belonged to the section *Buccinum*, and is supposed by eminent conchologists to have

(*Prunus spinosa*), which is found ornamenting in abundance many of the secluded glens so frequently to be met with in Scotland.

* I have seen it mentioned that Murillo derived the beautiful and peculiar shade of purple, which is often to be seen in his paintings, from observing the deeply-stained fingers of the female mulberry gatherers in the south of Spain.

† An eloquent writer of the present day describes the sea in the Grecian Archipelago as "of a deep purple, flecked constantly with foam." (Warburton's *Crescent and Cross*.)

been the *Helix Ianthina* of Linneus: it resembles in form the inflated cheek (*bucca*) of a person blowing a trumpet. Of the purple obtained from this mollusk, when used by itself alone, it is said by Pliny that it was “*austerus in glauco, et irascenti similis mari*:” a sullen deep blue, and resembling the sea in a rage (lib. 9, c. 36). It was modified, however, by other juices; and, when it constituted the chief ingredient in the mixture, it exhibited, according to the proportion used, three recognized varieties or shades. The first is seen in the purplish parts of the *Heliotropium*, or sun-flower; the second in those of the *Malva*, or mallow; and the third in the *Viola serotina*, or late-flowering violet. This last was highly esteemed, and is termed by Pliny *Conchyliorum vegetissimus*,—the freshest, or most lively, of the colours obtained from the *Conchylium* (lib. 21, c. 8). It is probably the same colour as that indicated by the above writer in the expression “*ianthina vestis*” (lib. 21, c. 6): a garment in hue like the flower of the violet. By Martial (lib. 2, epig. 39) the word *ianthina* is used absolutely in the neuter plural for garments of a violet colour: the adjective is evidently formed from two Greek words, signifying a *violet* and a *flower*. This is also, in all likelihood, the same shade of purple as that which was denominated *amethystinus*, from its resemblance to the precious stone called the amethyst: a person clad in a garment of this particular hue was termed *amethystinatus*. Thus Martial says (lib. 2, epig. 57), “*hic, quem videtis, gressibus vagis lentum, Amethystinatus media qui secat septa*:” the man, whom you behold moving leisurely on with steps uncontrolled, who threads his way through the midst of the public market, clad in a purple garment of the colour of amethyst. Ovid (*Art. Am.* lib. 3, v. 161) speaks of “*purpureæ amethysti*,” or purple amethysts. We are thus enabled to see that the flower of the violet, and the precious stone, the eastern amethyst, were both looked upon by the ancients as a shade of purple which was held in great esteem.

That the *purpura* of the ancients, however, included some shades of colour which are indeed well known to ourselves, but to which we are not in the custom at any time of giving the name of purple, is evident from not a few passages in their best and most familiarly known writers. Thus, for example, the pigment which the Roman ladies made use of for imparting a colour to their cheeks was called *purpurissum*, or *purpurissus*, although it must at once be evident, that if the application of this pigment had produced a decided, or even a perceptible, tinge of what we denominate *purple*, it would have proved an unnatural blemish, and not an ornament, on the countenance of an

aristocratic beauty of Rome: its colour was no doubt of precisely the same tint as what we call *carmine*, and the pigment itself answered to the *rouge* of the present day. Inveighing against the arts to which the females of his time had recourse for the preservation of their fading charms, St. Jerome indignantly exclaims, “*Quid facit in facie Christianæ purpurissus?*” or, as we would now say, What business has rouge on the face of a female follower of Christ? (Epist. 10). Of the particular tint produced by the *purpurissum*, the most explicit evidence may be deduced from numerous passages in the Roman poets. Thus Ovid says, “*Conscia purpureus venit in ora pudor*” (*Tristia*, el. 3, v. 70). To translate *purpureus pudor* as the *purple blush* would, however, be contrary to what may be daily witnessed in Nature; and the line must undoubtedly be rendered—the crimson blush arises on the conscious face. The same poet speaks of *purpureæ genæ* (*Amor.* el. 4, v. 22): but were this expression to be Englished, and to be understood as the *empurpled cheeks*, it would indicate a ghastly and unbecoming deformity; and we need not doubt that the colour known to us by the name of *purple* would on the cheek of a lady have been no recommendation, but the very reverse, to far worse judges of female beauty than Ovid: it must, indeed, be clear that in this verse *purpureus* can have no other meaning than *crimsoned*. The same remark is applicable to a passage from one of the comedies of Plautus:—“*Quia istas buccas tam bellè purpurissatas habes:*” because you have those cheeks of yours so prettily rouged,—not *empurpled* (*Trucul.* 2, 2, 35). There are other circumstances, from which it may be inferred that the ancients gave the name of *purple* to what among ourselves is uniformly denominated *red*. It is believed, for example, that their *minium* was exactly the same as our modern *vermilion*: but, should this point be disputed in words, we have it in our power to look upon an object in nature, to a particular and unchanging portion of which the epithet *miniatus* or *vermilioned* is applied by Pliny. The Romans were not acquainted to any great extent with the varied species of the parrot tribe: all that they knew were comprehended, it is believed, in the modern genus *Palæornis*; and the one with which they would seem to have been the most familiar is that which is now known by the name of *Palæornis torquatus*, or the rose-ringed parakeet.* There cannot be any doubt, we should imagine,

* In the vignette to the 19th volume of Sir William Jardine's *Naturalist's Library* there is a characteristic representation of this bird, from the exquisite pencil of Mr. Swainson. The ring round the neck is of a fine red. Your London readers may,

that this is the bird which is described in the following passage from Pliny, for the evidence furnished by his language is decisive:—"India hanc avem mittit, viridem toto corpore, torque tantum *miniato* in ceruice distinctam:" the bird in question is furnished by India; it is green all over the body, being marked only by a ring of vermilion on the neck. We know that it was the practice among the Romans, on festivals and on occasions of more than usual solemnity, to paint with vermilion the statues of their gods. Thus Cicero (Fam. 9, epist. 16) makes mention of *miniatus Jupiter*, or the *vermilioned Jupiter*, that is, a statue of the god which had been coloured in the manner now indicated. With a delicate flattery, and in the anticipation of the divine honours which awaited Augustus, Horace says of that emperor, "Purpureo bibit ore nectar:" he quaffs the nectar with reddened mouth (lib. 3, od. 3, v. 12). We have seen that this colour was imparted to the lips of the gods by means of *minium*. We are enabled, in this manner, to ascertain that the expressions *miniatus* and *purpureus* are synonymous; and we infer accordingly that, by the ancients, vermilion was regarded as one of the many specific shades which were included in the generic term *purpura*. Among the Romans, moreover, the pomegranate was known as the *Malum punicum*, or Carthaginian apple, and the epithet *puniceus* was used as descriptive of the blossom of the tree: of this the hue, as is well known, is of a most decided red: notwithstanding this, however, the words *purpureus* and *puniceus* are both applied as epithets to the same substance in nature; and we are hence entitled to conclude that the flower of the pomegranate was considered as one of the diversified tints of purple. Ovid says (2 Met. v. 607), "Candida puniceo perfudit membra cruore:" the ruddy gore flowed all over the snow-white limbs:—and Virgil, in describing a death of the same violent character, makes use of the expression, "Purpuream vomit ille animam:" his blood of crimson dye he vomits forth (*Æneid* 9, v. 349). That the colour, properly indicated by the Latin *puniceus* and the Greek *phoinikeos*, was dark or blood red, may be clearly perceived from the remark of a scholiast on a line in Homer (*Iliad*, lib. 11, v. 459). Lycurgus, he says, commanded the Lacedæmonians to wear a deep red dress (*estheta phoiniken*) in their wars, in order that, if any one were wounded, the circumstance might—from the resemblance of the colour (*dia to homochran*)—escape the

I presume, look at the living bird—which is the most satisfactory method of all—amid the rich collection in the Zoological Gardens.

observation of their enemies. The same thing is related by Plutarch in his *Laconica Instituta* (vol. ii. fol. p. 238).

It was the opinion of the ancients that the quality of the purple dye was very materially affected by the nature of the ground on which the *Murex* had its abode, and by the food on which it was nourished. We have already seen the pre-eminent beauty of that furnished by the *Murex* in the vicinity of Tyre. From the *Murex*, also, around *Tænarus*, a mountain and promontory in Laconia, now called Cape Matapan, there was a purple dye obtained which was accounted of great value, and was at one time the height of fashion. Pliny says, "*Purpura laudatissima in mari circa Tænarum promontorium capiebatur*:" a purple, very much extolled, was in the custom of being procured in the sea surrounding the promontory of *Tænarus* (lib. 9, c. 36). From what is said of this particular purple by the poet Valerius Flaccus, it would appear to have been of a bright red colour, having a resemblance to fire. His words are, "*Tænario ignea fuco purpura*" (lib. 1, v. 427): the fiery purple of *Tænarian* dye. When the *Murex* lived among sea-weed, the purple which it produced was termed *algensis*, from *alga*, a sea-weed; and when on a fetid muddy bottom, *lutensis*, from *lutum*, mud. To both these kinds Pliny applies the epithet *vilissimum*, that is, of the most worthless description. When on a bottom where the sea was of a pebbly description, the produce had the name of *calculensis*, from *calculus*, a pebble, and was of a finer character than the foregoing two. When the locality and food were of varied materials the purple was considered the finest of all, and was called *dialutensis*. Lastly he mentioned a kind which was known as the *tæniensis*: this was procured where the *Murex* had its abode amid reefs of rocks lying like so many fillets, or ribbons (*tæniæ*), at the bottom of the sea (Pliny, lib. 9, c. 37).

During the latter ages of the Roman Empire, when the Latin language had been adulterated by barbarous and unclassical words, the epithet *blatteus* came to be almost universally employed instead of *purpureus*. Silk was then first coming into general use in Europe, and the word of which we are speaking would appear to have been applied in an especial manner to that precious substance, when it was dyed of the colour of purple. Those individuals who made this their trade were termed *blattiarii*, or dyers of silk in purple (Cod. Theod. tit. 4, leg. 2); and the Roman senate is styled, by the poet Sidonius, who flourished A. D. 450, "*blattifer senatus*," or the purple-clad senate (lib. 9, ep. 16). The adjective in question is seemingly formed from *blatta*, the black beetle, or *Blaps mortisaga* of entomologists; and,

by the more recent and inferior writers of Rome, *blatta* itself is used to denote purple cloth. Vossius (Voss), a celebrated German philologist, assigns as the reason of this, “quod purpureus color illi colori similis est, quo apprehensa blatta manum hominis tingit (Etymol.): because the colour of purple is similar to that colour with which the black beetle, when it is laid hold of, stains the hand of an individual. On the other hand, Salmasius (De Saumaise), a Frenchman and a learned commentator on the classics, maintains that the word *blatta* is used instead of *purpura*, from the circumstance of *blatta* sometimes signifying a bubble, or drop, of clotted blood, and being explained in a Greek glossary by the words *thrombos chaimatos*, a clot of blood (Adnot. ad Vopiscum, c. 46). This seems the preferable reason,—more especially as we have seen that such is the shade of colour which is assigned by Pliny to the royal and the most celebrated purple of antiquity. In the Codex Justinianus, or Code of Laws of Justinian, who reigned A. D. 530, there is a purple mentioned by the name of *oxyblatta* (tit. 40, l. 1). As the Greek word *oxus*, which is here in composition, sometimes denotes that which is *clear*, the *oxyblatta* was probably a purple of which the colour was more than usually brilliant.

In an earthen vase, discovered, if I remember aright, in the baths of Titus, there were found a variety of pigments, or colours, which had belonged to an artist of antiquity. On these Sir Humphrey Davy instituted a series of experiments, and communicated the result of his researches to the literary and scientific world (Transactions of Royal Society, 1815). One of the colours was of the shade of purple, or rather red, which we denominate *lake*. He was unable to ascertain whether this particular pigment was of animal or of vegetable origin. If of the former, he supposed that it was, in all probability, the celebrated marine purple of Tyre. From what we have seen, however, in regard to the royal or Tyrian purple, this is not likely to have been the case, even if it could have been proved that the pigment in question was in reality of animal origin.

So greatly, in its variety of shades, was purple esteemed by the ancients, and so extensively was it used by all who could procure it, that there was a particular class of individuals who were known by the name of *purpurarii*, that is, dealers in purple. In the work of Ursatus (Marmor. Erudit. p. 230), there is a stone to the memory of C. L. Micus *Purpurarius*. On the stone are sculptured representations of the libra or pair of scales, of the ampullæ or flasks, and of the vasa or vessels, which the *purpurarius* made use of in the conducting of his business. In the Acts of the Apostles we are told of a certain

woman named Lydia, a seller of purple, or, as she would have been called in Rome, *purpuraria* (Ch. 16, v. 14). The finding and collecting of the various mollusks which were employed in producing the purples of antiquity, constituted, in like manner, the means of subsistence to a particular class of the community. These were called *Conchytae*, or shell-fishes; and sometimes *Conchylileguli*, or collectors of shell-fish. Thus, in the comic poet Plantus, who lived about 180 years before the Christian era, we meet with the exclamation, "Salvete, fures maritimi, Conchytae, atque hamiotae:" all hail, ye thieves of the sea, ye fishers of shells, and ye who make use of the hook, (Rud. 2, 2, 5); and, in the Codex of Theodosius and Valentinian, we find a declaration regarding those "qui patre Conchylilegulo geniti probabuntur:" who shall be proven to have been born of a father who was a gatherer of shell-fish (lib. 11, tit. 7). It was sometimes attempted, by means of sumptuary laws, to repress the extravagant passion for the wearing of purple which prevailed among the inhabitants of Rome. Of the great Julius Cæsar, we are informed by Suetonius, "Lecticarum usum, item conchyliatæ vestis, et margaritarum, nisi certis personis, perque certos dies, ademit:" he interdicted the use of sedan chairs, and also of a garment dyed in purple, and of pearls, unless to particular individuals and during particular days (Jul. Cæs. ch. 43).

On a review of the whole, the conclusion to which we would be disposed to come is this. Among the ancients the word *purpura* was a generic term, as the corresponding word *purple* is among ourselves; and it included, as purple does at the present moment, a great variety of shades of colour. It embraced all those, without exception, which may be discovered—by the unassisted and unpractised eye—as produced by the intermixture, in varying proportion, of the two primitive colours, red and blue; and in this respect, we, in modern times, go along with them: but, in addition to these now mentioned, the ancients gave the appellation of purple to various colours of which we never speak by that name. Of these, for example, may be enumerated, in the language of Mr. Syme, "scarlet, vermilion, arterial blood red, carmine, lake, crimson, &c." (Nomenclature of Colours, pp. 42, 43). And among them were some of those shades which, under the name of purple, were most highly and most generally esteemed by the nations of antiquity.

In modern times, the discovery in America of the cochineal insect (*Coccus Cacti*) has superseded the use of molluscous animals in the process of dyeing. By means of this insect it is believed that we are

enabled to produce colours, such as scarlet and crimson, of a more beautiful and permanent description even than those which were in the greatest repute among the ancients. It is the female insect only which is employed for this purpose. Externally she is of a deep brown colour, and not much bigger than a peppercorn : the internal substance, when reduced to powder, is of a rich purple. Cloth which has been dyed with cochineal is devoid of any strong or unpleasant smell.

JAMES SMITH.

Manse of Monquhitter by Turriff, Aberdeenshire,
June 15, 1849.

Notes on the Marine Zoology of Dunbar.—Fishes, Annelides, Crustacea and Zoophytes.
By ROBERT GRAY, Esq.

(Continued from page 2468).

AT neap tides the shore of Dunbar presents an interesting field of observation, extending upwards of a mile on each side of the town, with a large exposed surface of black rocks intersected in many places by deep pools. In the latter are found most of the fishes of the Forth which prefer a life among sea-weed, such as *Cottus scorpius*, *Crasterosteus spinachia*, *Blennius pholis*, *Murænoides guttata*, *Zoarces viviparus*, the young of the ling (*Lota molva*), *Motella quinquecirrata*, &c. Many of these, from their small size, escape general observation; and are left to multiply to a great extent, having no human enemy but the prying schoolboy and the rambling naturalist. In summer, however, there is a more attractive inhabitant, the lump-sucker (*Cyclopterus lumpus*), which is eagerly sought for by fisher-boys and others. This fish is very plentiful from May to September, especially in the pools farthest distant from the ordinary tide-mark, where the large blades of Fuci afford concealment to numbers; but even there they are speedily discovered and torn from their fixture, by the ruthless rock-fishers, to supply the demand in the market. Considerable numbers are killed in this way; but the boats never bring one to land caught by a hook, as this fish rarely takes a bait. The ballan wrasse (*Labrus maculatus*) and the red or trinnaculated wrasse (*L. carneus*), although common in some localities near the shore, are seldom caught by the fishermen, for they have an aversion to take any fish not in general use as food. A light fishing is the only incentive to bring ashore all that comes in their way, and it is then the wrasses, besides many others, are sold in the streets. On some occasions upwards of fifty specimens of the ballan wrasse, and half that number of the three-spotted wrasse, are offered for sale in a forenoon; and, as if conscious of the insignificance of its local name, 'sea sow,' as well as the caution of purchasers in taking a fish under such a title, the fish-wives—despite the wide separation of species—do not hesitate to sell the wrasse as perch. That the contents of their baskets may better sustain this valuable transformation of character, the vendors assure their customers that the said perch have been carried to the sea by the late floods; if such have

taken place; or in some other ingenious manner account for their occurrence in room of haddocks,—a deception which procures an immediate sale, and at the time yields a good profit. The last wrasse which was added to my collection was a large and beautiful specimen of *L. maculatus*,—a female full of roe in a forward state: the date on the label affixed to it is October 24th, on which day a number were procured from two boats usually employed in attending crab-cages by the side of the rocks. Most of them were females in the same condition as the one selected, thus showing that no definite season can be named for the spawning. In the South of England it takes place in April; but Dr. Parnell thinks that in Scotland it may be later. Large masses of roe, exact in resemblance to that of the ballan wrasse, are washed on the sands at Dunbar in July and August; but even amidst these observations I could hardly venture a decision on the subject.

The wolf-fish (*Anarrhichus lupus*) is much detested by the fishermen, as it too often exceeds in abundance the more profitable fishes. It is not uncommon to find thirty of these savage-looking animals in one boat, some of them of great size; and the mutilated condition they arrive in bespeaks at once the extent of the fisher's dislike, and the heavy blows which have been dealt to deprive them of life. Like the gray and red gurnards, the wolf-fish is skinned and made use of as food, which, according to the authority of those who have enjoyed the dish, is of a quality that would please even fastidious tastes. If this fish should be opened in the hope of finding the small shells and Crustacea on which it feeds, disappointment is invariably the result: its large grinders having crushed to pieces all its prey, nothing can be found but the mangled remains of a few fishes, and, in all instances, large quantities of the little variegated pecten shells reduced to sand. The common plaice (*Platessa vulgaris*) offers a better reward on dissection: in two average-sized individuals I have found upwards of two hundred shells, all of one species, *Pecten fusio*. The dab (*Platessa limanda*) furnishes the same shell in equal numbers, together with another pretty small pecten (*P. lævis*). Almost every fish brought to land is worthy of more than external examination by the naturalist; but the common cod and the skate (*Raia batis*) are above all others the most fertile subjects: the former yields many conchological specimens, while in the latter may sometimes be found minute fishes and Radiata which are not otherwise easily obtained. The voracity of the cod is well known; nothing in the wide ocean, whether resting at the bottom or floating on the surface, comes amiss to its ravenous appetite: shells, crustaceans, fishes, annelides and zoophytes, all find a grave in its capacious stomach. Nor do more highly organized forms escape: two instances have occurred within my memory where adult specimens of the common guillemot have been found swallowed entire. Throughout the winter season one of the most brilliant and iridescent sea-worms of our Scottish coasts, *Aphrodita aculeata*, forms its choice morsels; and, from the greater number of cods which are killed, these curious creatures can be taken in a good state for preserving.

I have to record the capture of the greater weever (*Trachinus draco*), a fish rare in Scotland, and, as far as I am aware, new to the Frith of Forth. It was found in the herring nets on the 14th of August, near the Bass Rock; and all the fishermen of the shore affirmed they had not before seen a fish like it. The other species in the genus *Trachinus* (*T. vipera*) is common in shallow water over Tyne sands, about a mile west from the town.

No one who daily visits the sea-rocks can fail to observe the profuse tenantry of the common *Nereis* in every channeled pool: not a flat stone can be upturned without

alarming a host of them. Multitudes may be seen rolling in a languid state, towards the sea, in the rippling course of a small rivulet which spreads over a bed of stones on the beach before joining the ocean. There they furnish a rich repast for the heron, curlew, godwit, redshank, and other Tringæ. My attention was drawn to the spot by observing daily large flocks of these coast birds feeding; and I was surprised, on examination, to find that a bushel of worms could have been gathered in a short time. It would appear, from this circumstance, that these singular creatures—during the flowing of the tide—must travel from their usual site and settle under the stones at the mouth of the stream, whence they are ejected when the tide recedes by the rush of fresh water, which destroys numbers before they reach the sea. In its natural abode the Nereis is active, and eludes capture—as well as more perfect animals—by burying itself in the sand or slipping amongst the loose pebbles. There are apparently two kinds: one grows to some thickness, equalling in bulk many of the soft-bodied annelides, as the sand-worm (*Arenicola piscatorum*); the other, which is probably a variety, is more slender, often not half the breadth, although of the same length.

But the animal now spoken of is but one of a hundred which inhabit the dark blue waters: still more interesting members of the tribe are found where no human hand can upset their domicile, and no rivulet wash them from their lurking-place. The lines of the fisherman and the dredge of the naturalist are the only means of revealing the diversity of their forms, the nature of their habitat, and the extent of their distribution. The tubicolar species abound amongst old and worn shells long since relieved of their owner; and in almost all of the saucer-shaped valves their tortuous cells are glued to each other, and bound with hair-like zoophytes, broken shells and coarse sand. Flexible sheaths are not less common: they are formed by a large and beautiful species, having a bunch of thread-like tentacles surrounding its mouth, and short cirri along its sides. As formerly noticed, this kind of tube is invariably covered with a crust of *Alcyonium digitatum*, which, in its turn, is sometimes surmounted by the tree zoophyte (*Eudendrium rameum*). The annelide in question is not entirely restricted to this mode of house building; it also forms for itself a covering on the interior surface of a bivalve shell, usually coiled round the edge; and in many cases I have observed its tube wound about the stalks or mattings of dead zoophytes. When so discovered, however, it partakes of the India-rubber nature, and has more or less of that leathery appearance which is so conspicuous in the straight and black-coloured sheaths.

The fishermen suppose, and certainly their daily observations almost justify a belief, that most of marine animals—especially in the lower scale of beings—live on very friendly terms. They lift a handful of refuse from their baskets, and tell their visitors to witness the congregation of worms in an old shell,—how they live in harmony, although their mansions of fragments are piled over one another and run across in every shape. The ponderous horse-mussel (*Modiola*) is adduced as another example, of which I have myself been a witness, carrying on its back two large polypi without resisting the burden, although it will snap asunder the fishing-lines after seizing a baited hook; and even the smaller crabs do not escape notice as rendering important service to some corallines and sponges which grow and flourish on their carapace. Various univalves perform the function of a carrier to many of our graceful species: on two or three occasions I have found *Antennularia antennina* affixed to live shells of *Buccinum undatum*, each whorl being adorned with a feathery stalk.

Almost every animal renders support to some object, displaying a mutual dependance unknown to the same extent in land zoology: even the inanimate polypidoms of the numerous zoophytes are loaded with parasites in the shape of little worms and shells, and sustain bunches of 'sea-grapes,' a term applied by the fishermen to the eggs of the cuttlefish (*Sepia*). But amidst these promiscuous obligations, which owe their existence more to accidental contact than harmonious feeling, there is given an occasional proof of maternal care, or, to modify the expression, an apparent interest by one animal for the safety of its own species. The mollusk living in the common spindle-shell (*Fusus antiquus*) illustrates the truth of this remark, by its singular habit of building layers of spawn on the roof of its tenement to the height of three inches, and roving through its native element with the weighty charge. This self-created burden is firmly cemented to the shell, and consists of numerous cells regularly placed over one another, each containing the germs of three young shells, which in due time become fully developed. On a shell of average size, I counted, after opening all the divisions, upwards of two hundred, and each of these had attained a size larger than a grain of barley. Although the spawn of the *Fusus* is frequently lodged in this manner, yet I believe its general habit is that of depositing it in clusters at the bottom of the sea, at a depth of thirty fathoms and upwards, as I have found in such a situation compact masses as large as a man's head. It may be presumed that lumps like these were the labours of a community, and not piled by one individual.

The long-clawed lobster is not common at Dunbar; but a species nearly allied to it, *Galathea strigosus*, is very frequently taken in crab-cages, along with a small spider-like crustacean named by Pennant the 'Weymouth crab.' *Cancer Norvegicus* of the same author is most abundant: many are got on the fishing-lines; but the best specimens are to be had from the fish-curer's, who often find more than a dozen in a cod's stomach. Its ordinary length, from the tip of the claws to the extremity of the tail, is about eight or nine inches, although occasionally it is seen double that size: it is never, I believe, used as food. Notwithstanding its numbers, no one ever finds it near the shore in the holes of rocks, as in the case of others of different species, which in summer shift their position: it appears, therefore, to be a constant resident in deep water. *Lithodes arctica*, a large spiny crab, proper to the Northern seas, becomes very common, close to the shore, in April, for the purpose it is said of depositing its spawn; but it is somewhat singular, that out of twenty or thirty obtained from March to May I found only one female. It is sometimes met with at low water, wedged in narrow crevices of rocks, beside the large edible crab (*Cancer pagurus*), and in deep pools amongst Fuci leaves; but during the entire winter it abandons the shore, and is seldom got within ten miles from land.

Halichondria palmata is the only sponge from deep water which is familiar to the fishermen: they do not often take notice of any others, as from their smaller size they escape general observation, or, if seen, are shaken off their lines without a glance of inquiry. The 'sea-fyke,' however, as *H. palmata* is termed, is carried home, and sometimes—when the specimen is large—made use of by boys at school for washing writing slates. This fine production does not always grow upright, nor are its branches always compressed. It is found growing in broad spreading shapes, forming a union of branches without any stalk. Various pieces procured from the usual fishing-ground had this form; and all the points of the ramifications, as well as the entire surface, were finely rounded, and of a closer texture than is seen in its most common growth like a plant. When taken from the sea the colour is reddish brown;

but when squeezed for some time below a water-pipe it becomes perfectly white, like bleached ginger.

Situated as Dunbar is, on a point much exposed to cold and unfavourable winds from the north, it might be supposed that its marine zoology would be barren, especially in relation to those objects which thrive best and grow largest in a milder temperature. Its bay and neighbouring sea, however, are known to be almost as fertile as any locality in Scotland which has yet been investigated; and a series of daily observations, combined with a certain degree of enthusiasm, cannot fail to reveal much that a partial examination would overlook.

If there exists a difference in the quality of animals, so to speak, it lies in the size and not the beauty of the specimens. It is a remarkable fact, for instance, that out of thousands of an abundant species of zoophyte,—*Pennatula phosphorea*,—which is cast out of the fishing-boats, not a single individual can be found longer than two inches; while on the west coast, as is well known, the same object, when gathered from sheltered situations, measures five inches; and besides, the colour of the small *Pennatula* got at Dunbar is dark red. The common *Echinus*, or sea-urchin, and the *Spatangus*, are other examples of a stunted growth; but the fishermen assert that the former is found attached to the sides of the Bass rock, in the Frith of Forth, as large as a man's fist, though true it is that in deep water hundreds exist in a diminutive form. Those affixed to the rock have shelter for growth; but the less favoured, and by far the greater portion of the urchin population, are without support and stunted—a dwarfing influence which may be attributed to the nature of their habitat, in the cold and restless German Ocean.

But bleak and inhospitable as the scene may appear, it is not devoid of interest; there is enough to repay the trouble of research. It yields a fair proportion of the zoophytes, corallines, lithophytes and sponges, described by Dr. Johnston in his much-valued works; and is also famous as being the shore where the indefatigable Captain Laskey pursued his studies in Conchology with so much success, and increased the catalogue of British shells. Since the termination of his labours, many years ago, the field has been unoccupied, without even an accidental visitor to record its productions.

ROBERT GRAY.

West-end, Govan, near Glasgow,

June 12, 1849.

Reply to the Inquiry of Mr. Duff as to the best mode of preparing Skeletons (Zool. 2474).—I have for many years procured clean and perfect specimens of small species of Mammalia, birds, reptiles and fishes, by means of larvæ of *Dermestes lardarius*. To prepare the specimens, I skin them, remove the viscera, and as much of the flesh as I can cut away with little trouble; place them in position, on a piece of wood or cork, and fix them with pins; then put them into a box containing the insects. Frogs, toads, newts, and soft-skin fishes, do not require skinning, but the viscera should be removed, and the specimens pinned out on a piece of wood or cork. Fishes with firm scales I preserve with the skin on one side, showing the skeleton on the other. To prepare a specimen I cut away one side of it, leaving half the head, the

dorsal, caudal, ventral, one of the anal, and of course one of the pectoral, fins, and remove the viscera: this I do carefully, to avoid breaking or displacing the bones: then I place it out on a piece of wood or cork, with the skin upwards, displaying the fins, and, fixing them with a few pins, expose the specimen to a current of air,—as much as possible in the dark,—to stiffen the skin and fins before it is put into the box of insects. June and July are the most favourable months for the operations of these little anatomists. I have often had a mouse, a small bird, or specimens of other kinds of the size of these, cleaned thoroughly in a night and a day, but there must be a good assembly of the operators to do this. These beetles, in the perfect and larva state, can be procured in tallow-melters' shops, warehouses containing dried untanned hides and skins, and other places which contain stale animal substances. They should be kept in a box close enough to prevent their escape, and large enough to receive specimens, with some fur, feathers, or a small animal skin or two; and in the absence of specimens a piece of suet should be put into the box, which should be kept dry, and where it will have occasional sunshine.—*Wm. Baker; Bridgwater, July 11, 1849.*

Polecat in Suffolk.—In answer to to the inquiries of Mr. Bird (Zool. 2440), concerning a former note of mine (Zool. 2379) on the occurrence of the polecat here, I have only to say that with us this animal is by no means common, for previously to the capture of the specimen already referred to there has not been one caught here for upwards of ten years. Neither do I think that it ever has been plentiful; for before the making of plantations was generally commenced, the open country—being also flat, dry and sandy—was quite unsuited to its habits; and almost coeval with the spirit of planting has been the system of strict game-preserving, which effectually destroys any predatory stragglers before they have time to stock the neighbourhood. This is the only explanation which I have to offer your correspondent on the subject; but surely when he speaks of the polecat's being "the most common of our carnivorous Mammalia," he forgets the stoat and weasel. With regard to Mr. Bird's remarks on the ferret, I beg to say that I do not think it is the common opinion among the warreners here that the ferret is very susceptible of cold, but that it can endure it well enough to live even at large throughout the winter. An instance of this occurred in the past season, when a ferret escaped and ran wild for nearly two months; and when it was at last caught, it was fierce and difficult to handle. It may be said, however, that we have had no very cold weather this past year; but it is of little consequence, for I believe similar cases are perpetually happening. The practice of some of the best warreners about here is to keep their ferrets in a small deep pit exposed to the weather, and as long as they are kept dry they do not appear to suffer from any change in the temperature: such ferrets are generally stronger than those kept in boxes.—*Alfred Newton; Elveden, Thetford, June 6, 1849.*

Oology and Ornithology.—I quite agree with some of the observations of Dr. Scott (Zool. 2451), that the rage for collecting eggs will render our rare birds still rarer; but it will not have this effect if egg-collectors will refrain from taking any but the early nests, leaving the second ones alone. In a shrubbery about 200 yards by 10,

surrounding my garden, I had three nests of the nightingale this year. Being surrounded by footpaths, I am of course subjected to the depredations of rascally boys, cats, &c. The first of my three nests got on very well, and hatched off their young. The second being built close to the path, I took the eggs, substituting those of the chaffinch, which were next morning gone; but the old birds built again near the same spot, and have now young ones. The third nest, for some reason or other (probably the destruction of the female) was abandoned when upon the verge of hatching. There is now, however, a nest with young ones near the same spot; so that, notwithstanding two mischances, I shall have three nests hatched off,—the produce thereof to visit me I trust another year. If it is cruel, and causes a diminution of the species, to take the eggs, how much more cruel and *unnatural* is the practice of shooting every bird that has the slightest pretension to rarity. One of your correspondents (Zool. 2497) describes how he killed the old ones and took away the young of a family of that beautiful bird, the lesser spotted woodpecker. Another equally intelligent correspondent describes seventeen specimens of the pied flycatcher as having been shot near Norwich. Every page, in fact, of your Journal describes *captures* of this kind. I confess I read these communications with pain: *they do not serve the purposes of Natural History*; for what do we want to know in the plumage or anatomy of the little woodpecker, the pied flycatcher, or any of the beautiful and useful birds of prey, from the king of birds—the golden eagle—to the luckless kestrel?—all or each of which are becoming rarer and rarer, until many of them in a few years, like the bustard, will be extinct in our island. If naturalists have an opportunity of seeing our rarer birds in the county and national museums, and in the numerous private collections scattered in every town in the kingdom, where is the good of continuing the work of extirpation? It is for these reasons that I have for some years ceased to collect birds, and confined myself to Oology instead. I can only boast of 9 acres of ground and garden, but I am happy to say that no bird of any kind is allowed to be shot there; and had I 900 instead, I should take the same pride in offering to the most beautiful and most persecuted of God's created things a home and a refuge. I do not understand Natural Science to consist of a mania for collecting: I look upon it rather as a study of God's works in the world which he has created and peopled,—as a system of observation into the habits and peculiarities of living Nature. Let me advise all who love such pursuits not to encourage the wholesale slaughter of rare birds: if people would cease to buy, the price upon their heads would become nominal, and we might again see the eagle, with his 9 feet of wing, soaring over our rocky mountains,—and the peregrine falcon remain undisturbed at Beachy Head,—and the lesser woodpecker and pied flycatcher become happy, gay, lively, beautiful additions to our national fauna.—*C. R. Bree; Stowmarket, July, 1849.*

Rare Birds near Thetford.—The white-tailed eagle I have before alluded to (Zool. 2383), as having haunted this neighbourhood for the past autumn and winter, was at last shot at Downham, the first week in March: it was first seen October 19th. Another was killed at Blickling, near Aylsham, in Norfolk, in December last. A pair of adult peregrine falcons were killed near here this last spring; the male at Euston, the female at Cavenham. Specimens in immature plumage are by no means uncommon, but I never met with adults near here before. The Euston bird was about the finest I ever saw. A great gray shrike was shot at Merton, near Watton, in Norfolk, the third week in April.—*Alfred Newton; Elveden, Thetford, June 6, 1849.*

Arrivals of Migratory Birds at Elveden, Suffolk, in 1849.

Ringed plover	about February 13	Swallow	about April 25
Peewit	" " 15	Martin	" " 26
Wheatear	" March 20	Nightingale	" " 28
Great plover	" " 30	Common whitethroat ...	" " 30
Blackcap	" April 6	Tree pipit.....	" May 3
Willow warbler	" " 6	Chiff-chaff*.....	" " 4
Dotterel	" " 10	Nightjar	" " 7
Wryneck	" " 12	Spotted flycatcher	" " 8
Whinchat	" " 21	Turtle dove	" " 11
Redstart	" " 23	Common swift	" " 14
Cuckoo.....	" " 23		

—*Alfred Newton ; Elveden, Thetford, July 2, 1849.*

Nidification of Birds near Elveden, in 1849.

Thrush.....	about March 8	Wheatear†.....	about May 1
Raven	" " 10	Willow warbler	" " 1
Missel thrush	" " 23	Common partridge.....	" " 1
Blackbird.....	" " 23	Pied wagtail	" " 2
Peewit	" " 26	Blue tit	" " 2
Rook	" " 27	Nuthatch.....	" " 2
Stock dove†	" " 27	Common linnet	" " 3
Robin redbreast	" " 31	Lesser redpole	" " 3
Hedge sparrow	" April 3	House sparrow	" " 5
Long-tailed tit.....	" " 4	Greenfinch	" " 5
Wild duck	" " 5	Common creeper	" " 6
Common snipe	" " 8	Chaffinch	" " 7
Ringed plover.....	" " 10	Bullfinch.....	" " 8
Skylark	" " 13	Lesser whitethroat	" " 9
Common pheasant	" " 13	Blackcap.....	" " 11
Moorhen	" " 14	Common bunting	" " 13
Red-legged partridge ...	" " 15	Garden warbler	" " 14
Magpie	" " 17	Yellow hammer	" " 16
Stonechat.....	" " 19	Red-backed shrike	" " 19
Golden-crested Regulus ..	" " 25	Nightingale	" " 19
Meadow pipit	" " 26	Common quail	" " 20
Wren ..	" " 26	Sand martin	" " 21
Starling	" " 29	Little grebe.....	" " 23
Great plover	" " 30	Sedge warbler.....	" " 26

* I cannot offer any reason for this bird appearing so late ; but I can state confidently that it did not arrive here or in the neighbourhood before the above date.

† It is perhaps worthy of remark that I found a pair of the eggs of this bird in a very different situation to that which is usually chosen by it, being laid on a very thick bushy bough of a Scotch fir tree, about twelve feet from the ground, without any nest.

‡ I this year obtained some eggs of this bird minutely spotted with light red at the larger end.

Spotted flycatcher	about May 30	Common swift	about June 2
Cuckoo	" " 30	Nightjar	" " 10

The dates are those on which the birds respectively laid their first eggs, and, together with those in the former list, were recorded by my brother.—*Id.*

Discoloured Eggs of the Kestrel (*Falco Tinnunculus*).—In the 'Zoologist' (Zool. 2301) it is stated that "the colouring matter, as in the case of sparrow-hawk's and other eggs, easily comes off,"—alluding to the green woodpecker. This year I received some eggs of the kestrel, which were rather dirty; so, after blowing them, I washed them in cold water, and much to my surprise the whole colour came off, leaving the eggs of a dirty yellow, speckled with drab. Not long after this I received five eggs from another kestrel's nest, which were exactly like those I had previously, after they were washed: unfortunately they were set hard, and I was only enabled to blow one, which I have preserved.—*J. B. Ellman; Rye, July 18, 1849.*

Note on the Water Ouzel (*Cinclus aquaticus*).—I could hardly have thought that the description of this amusing bird had been penned from the life, by my friend Mr. Briggs (Zool. 2479), only I know so well his singular perseverance in discovering the habits of birds, and the carefulness of his observations on his favourite branch of field natural history: however, I should have concluded that the bird he describes was a really "clumsy and inelegant," waddling, short-winged aquatic bird, and not the agile, smartly made denizen of our mountain streams. I had many opportunities of watching the interesting little fellow when touring up the river Dove last July: for fifteen miles up that picturesque and rocky stream, his snow-white breast detects him perched upon the jutting stones of every little waterfall, and, jerking his tail and wings as he skips about the stone, he seems all life and activity: his watchful eye being ever directed to your approach, when he deems you too near for his safety off he flits to some distant stone, with a quick, straight-forward flight. I was certainly much pleased with his pretty form and liveliness, and can never consider him to be a "swimming bird, which, when alarmed, occasionally makes use of his wings."—*John Olans; Leicester, July 13, 1849.*

Singular Variety of the Redbreast.—A very singular redbreast was brought me yesterday: the head and neck is a silvery white, while the bill is a dead white (more like plaster of Paris than a horny substance); the breast red; the belly and legs white.—*Joseph Duff; Bishop's Auckland, July 19, 1849.*

Occurrence of the Fire-crested Regulus (*Regulus ignicapillus*) and *Crossbill* (*Loxia curvirostra*) at *Bembridge*.—I shot, at the beginning of the present month, a young bird of the fire-crested Regulus, and within the last few days we have been visited by the crossbill in considerable numbers: they were first noticed on the 17th, and on the following day I procured several specimens. I am told that it is now ten years since the latter bird was seen in this locality.—*A. G. More; July, 1849.*

The Crossbill (*Loxia curvirostra*) *nesting in Durham*.—For some time I have thought the crossbill to be a native resident in the county of Durham: my reason was,—they have at intervals been seen in large flocks, though always in autumn or winter; yet having in the western part of the county many thousand acres of fir plantations suitable for food, I thought it not unlikely some might stay with us the year round: but although I have many times inquired, and also visited the locality myself to ascertain the fact, I could not obtain any satisfactory evidence until Sunday, the 15th instant, when, taking a drive in that neighbourhood, I had the good fortune to see a flock of birds cross my path, which appeared to be crossbills; so, leaving the

gig, I followed some distance into a fir plantation, when, to my no small gratification, I found perhaps thirty or more feeding on some Scotch firs. The day being fine, and as they were the first I had seen in a state of wild nature, I watched them for about twenty minutes: their actions are very graceful while feeding, hanging in every imaginable attitude, peering into the cones, which, if they contain seed, are instantly severed from the branch; clutched with one foot, they are instantly emptied of their contents, when down they come. So rapidly did they fall, that I could compare it to nothing better than being beneath an oak tree in autumn, when the acorns are falling in showers about one's head, but that the cones were rather heavier. No sooner are they on the wing than they one and all commence a fretful, unhappy chirl, not unlike the redpole's, but louder; but from that well-known and expressive attitude, as well as the chirl made by most young finches, I was certain many of them were too young to have come from any great distance; so Mr. Allan, a brother naturalist, and myself, fully anxious to be certain in this particular, started early on Tuesday morning to procure, if possible, a young bird, when, after roughing it through brake and brier for eleven hours, I succeeded in shooting one. We might have got one much sooner, but when we arrived at the scene of action we found an enemy in the camp before us, in the shape of a sparrow hawk, dashing right and left in the midst of the flock, which made them very wild; and it was not my wish to fire promiscuously at the flock, but to select a young bird. The old birds were very conspicuous when feeding; the males dressed in fine rosy red, and the old females—from the upper mandible to the insertion of the tail-coverts—a fine olive-green, but the coverts are yellow, equal in colour to the coverts of the green woodpecker. Colour of the young birds:—head, neck and back dark ash, tinged with green, thickly marked with brown; breast, rump and flanks greenish yellow, marked with brown; vent ash; under tail-coverts brown, each feather edged with ash; wings olive-brown; larger wing-coverts slightly edged with white, forming a slight bar; mandibles much darker than those of the old birds. The bird shot and described as above is quite naked of feathers under the wing and down the middle of the belly near to the vent, which I think proves it to have been bred here: the time of year when it was taken is also in favour of this opinion.—*Joseph Duff; Bishop's Auckland, July 19, 1849.*

Occurrence of the Crossbill at Wisbeach.—A fine male bird was shot in a field near to the Mount Pleasant bank, in this town, on the 17th instant. This is a very unusual visitant in this district, which is destitute of woods and fir plantations. It was in company with some sparrows. The man who shot it took it to the museum in this town.—*Robert Marris; Lynn Road, July 19, 1849.*

Nesting of the Cirl Bunting (Emberiza cirrus) at Rye.—About three weeks ago a nest of the cirl bunting, containing four eggs, was taken about two miles from this place. This bird appears to be exceedingly local in its habits. In some parts of Sussex it is tolerably common; but though I have for seven months searched diligently, I have only been able to procure three males and one female. A full account of its localities in Sussex will be found in Mr. Knox's 'Ornithological Rambles.'—*J. B. Ellman; Rye, July 14, 1849.*

The New British Woodpecker killed in Yorkshire.—The woodpecker described by Mr. Higgins (Zool. 2497) is the female of the hairy woodpecker (*Picus villosus*).—(*Picus villosus*, Linn., Gmel. Hairy Woodpecker, Penn., Lath., Montagu, Lewin., &c. Pic chevelu de Virginie, Buff. Pic varié de Virginie, Briss.) Mr. Higgins's description is so clear and full that I have not the slightest doubt about the bird; and I can

only ascribe its non-recognition by the two eminent ornithologists who have seen the description, to the fact that Mr. Higgins has laid no particular stress on the loose-webbed or hairy feathers that grow down the middle of the back. To these, and to the "tufts of hair-like feathers" or bristles which clothe the nostrils, the bird owes its name; and these, colour apart, are its principal specific distinguishing marks. In the male bird the occiput or back of the head is scarlet. The hairy woodpecker is a native of North America, and is very common in the orchards there, where it does good service. This is not, however, the first time that it has been claimed as a denizen of Britain. Many of our naturalists, who wrote at the end of the last and the beginning of the present century, state that it has been seen in Yorkshire, and elsewhere in the north of England; and Lewin gives the authority of a "Mr. Bolton, who met with it at Halifax." But Mr. Yarrell altogether ignores it, and other modern English ornithologists only refer to the reports for the purpose of doubting them. About three years ago I myself received from Worcestershire the skin of a woodpecker, then unknown to me: it was sent by a relative, to whom it had been given for me, as a "mighty rare bird." I handed it to my friend Mr. W. R. Fisher, and on his showing it to Mr. Yarrell and some other high authorities, they at once made it out to be *P. villosus*, and desired proof that it was English. This proof I endeavoured to procure; but as I could not get my Worcestershire friends to see any importance in the inquiry, I was compelled to let the matter drop. I hope Mr. Higgins will be more successful, and that we may now, with certainty, include this species in our English fauna. I confess that, even before this recent capture, I have always thought that *P. villosus* had quite as much right to be considered an English bird as its congener, *P. martius*; although it is very singular that it has never been seen on the continent of Europe, as many other woodpeckers—strangers to our coast—dwell there.—*W. F. W. Bird*; 5, *King's Road, Bedford Row, July 2, 1849.*

• *Occurrence of eight Night Herons (Nycticorax ardeola) in Devonshire.*—As I was perambulating the banks of the river Erme, Devon, on Wednesday, May 23rd, 1849, with my fishing-rod in my hand, I was informed by the gamekeeper at Flete, near Erme bridge, who has a keen eye for our rare feathered visitants, that he had seen a bird like a young heron. I soon went in pursuit of the *rara avis*, and to my astonishment flushed four night herons, and in less than twenty-four hours succeeded in securing the whole of them. About a week subsequent to the above date, owing to information I had received, I renewed my search, which resulted in my killing two more of these birds; and on Friday, June 22nd, having accompanied a young friend, Mr. R. A. Julian, jun., of Estover House, to beat the river for what I considered the last of the flock, our efforts did not prove unavailing, as we bagged a bird each; thus making up the complement of eight adult birds, four males and four females. These are very uncommon birds in this country, and when they do appear are seldom seen, from their shy and solitary habits. It may be considered a fact worthy of notice, that the gamekeeper at Flete killed two little bitterns (*Ardea minuta* of Linneus), some years since, within a short distance of where the night herons were seen.—*C. J. C. Bulteel*; *Holbeton, Erme Bridge, Devon, July, 1849.*

Occurrence of the Little Bittern (Ardea minuta) at Yarmouth.—Three specimens of the little bittern have been shot on our marshes during the past spring. I cannot give you any particulars respecting them.—*John Smith*; *Great Yarmouth, July 11, 1849.*

Occurrence of the Avocet (Avocetta recurvirostra) in Romney Marsh.—Another fine

specimen of this *now* scarce bird occurred here last April. In the former occurrence which I noticed there were five in a flock, but only one was procured.—*J. B. Ellman; Rye, July 14, 1849.*

Occurrence of the Little Stint (*Tringa minuta*) *at Rye*.—I shot a pair of these scarce birds, in full summer plumage, from the pells along our coast. I had observed them for some days past, but not recognizing them I did not molest them, until I was satisfied that they were new to me. I have since seen another specimen at the same place.—*Id.*

The Summer Duck a British Bird.—Concerning the remark made by Mr. J. W. Hulke (Zool. 2421) on the opinion I expressed (Zool. 2382) on the right of the summer duck to be considered a British bird, I only wish to draw his attention to the fact that my communication was written before his was published.—*Alfred Newton; Elveden, Thetford, June 6, 1849.*

Occurrence of the Caspian Tern (*Sterna Caspia*) *at Yarmouth*.—On June 2, 1849, a fine female specimen of the caspian tern was shot on Breydon, Great Yarmouth, by H. J. Barber, Esq. The length of the specimen, from the point of the beak to the end of the tail, is $22\frac{1}{2}$ inches; breadth, from tip to tip of the expanded wings, 4 feet $3\frac{1}{2}$ inches. The specimen is mounted and in Mr. Barber's possession.—*John Smith; Great Yarmouth, July 11, 1849.*

Occurrence of the Little Gull (*Larus minutus*) *at Yarmouth*.—A specimen of the little gull was shot on Great Yarmouth beach, returning from the land, on May 30th, 1849, by Mr. W. Lucia. In its stomach were found several brown hairy caterpillars, supposed to be the larva of the tiger moth (*Arctia caja*). The feathers on the head were turning black. The specimen is mounted, and in Mr. Lucia's possession.—*Id.*

Proceedings of the Zoological Society.

Monthly General Meeting, July 5.—Sir GEORGE CLERK, Bart., V.P., in the chair.

The Earl of Pembroke, W. Pennell, Esq., and S. S. Teulon, Esq., were elected Fellows.

Lambert Foster, H. Drummond Wolf, James Tennant, S. C. Baker, John Hunt, James Purday, and David Ivall, Esqrs., were proposed as candidates for the Fellowship.

Read, a Report from the Council, which announced that upwards of 120 animals had been added to the menagerie since the last meeting. The principal donations received were owing to the munificence of his late Highness, Ibrahim Pacha, and Lieut.-Col. Butterworth, the Governor of Singapore. The Agent of the Society, who had been dispatched to Alexandria for the purpose of receiving the gifts of the Viceroy, had succeeded in bringing the whole of them to England in safety; together with a very extensive collection obtained by the valuable aid of the Hon. Charles A. Murray, which included a series of ten species of reptiles indigenous to Egypt, viz., *Naia haje*, *Vipera* (*Cerastes*) *Hasselquistii*, *Psammosaurus griseus*, *Uromastix spinipes*, *Stellio vulgaris*, *Gongylus ocellatus*, *Tarentola Aegyptiaca*, *Sphenops capistratus*, *Acanthodactylus* ———?, *Chamaeleo vulgaris*. The other additions to the reptile-house were *Coluber viridiflavus*, *Lacerta ocellata* and *Rana viridis*, presented by J. J.

Forrester, Esq.; *Crotalus durissus*, male and female, presented by R. Davis, Esq.; and some specimens of the new British reptile, *Triton palmatus*, from Nottingham, presented by J. E. Gray, Esq.,—a reptile first noticed as British in the 'Zoologist' for last year (Zool. 2149).

The Report also recorded that three species of Mammalia and six species of birds had bred in the menagerie during the month of June, among which the Sambur deer and the Australian crested dove (*Ocyphaps lophotes*) were most worthy of notice.

The increase of the number of visitors in June, as compared with the corresponding period of 1848, amounted to 9087.

Proceedings of the Entomological Society.

July 2.—G. R. WATERHOUSE, Esq., President, in the chair.

Archibald Hepburn, Esq., was present as a visitor.

The following presents were announced: 'On the Animals still found in a Living State in the Stomachs of Oysters,' by the Rev. J. B. Reade: presented by the author. 'Observations on the Application of Electricity, Galvanism and Electro-Magnetism, as auxiliaries to Medicine and Surgery,' and 'On the Closure or Obstruction of the Eustachian Tube:' both presented by the author, Mr. Wright. Five of the publications of the Société de Physique et des Sciences Naturelles, of Lyons: presented by that Society. A large collection of Java insects, from Mrs. Hofland, of Java: presented through Wm. Spence, Esq. The thanks of the Society were given to the respective donors.

James B. Ellman, R. A. Ogilvie, James Bladon, and G. M. Salt, Esqrs., were balloted for and elected subscribers.

Mr. Weir exhibited specimens of *Gelechia Lappella*, bred from burdock heads; *Antithesia Capreana*, reared from sallow leaves; and *Sericoris signatana*, which appeared in a cage containing leaves from several plants. Mr. Douglas observed that the breeding of *G. Lappella* was particularly interesting, inasmuch as a doubt had arisen whether this species—which was identical with *Recurvaria silacea* of Haworth and the *Cleodora silacella* of Stephens—was the same as *R. silacea* var. β . of Haworth (*Cleodora falciformis* of Stephens, *G. paucipunctella* of Zeller); and as Mr. Weir had reared but this one species from burdock heads, and the observations of continental entomologists as communicated by Herr Zeller went to prove that *Lappella* and *paucipunctella* were distinct species, the opinion of Mr. Stainton that they were not different was erroneous. Mr. Stainton said he was convinced, and withdrew what he himself had called a "bold assertion."

Mr. Wing exhibited specimens of *Depressaria conterminella*, bred from osier leaves.

Mr. W. Michael exhibited a fine *Deilephila Galii*, taken at Caen Wood, on the 22nd June.

Mr. S. Stevens exhibited several species of Lepidoptera taken about St. Osyth, in Essex, including an apparently new *Lozotania*: also several species found on the coast beyond Southend, including *Gelechia pictella* and a new *Psyche*,—the same

as found in the Isle of Sheppy by Mr. Ingall, and which Mr. Newman had proposed to call *retiella*.

Mr. Stainton exhibited a species of *Tineidæ* new to Britain, *Nepticula argyropeza* of Zeller, taken near Sheffield, and an *Æchmia* from West Wickham wood. He also exhibited, from the collection of Mr. Allis, *Argyresthia Sorbiella*, taken on mountain ash, and a new *Tinea* allied to *mascullella*.

Mr. Bond exhibited some Coleopterous larvæ which had caused great destruction among the tares, at Newton, in Cambridgeshire. He also showed a specimen of *Nascia cilialis*, from the same locality,—a species which had remained unique since first taken by the Rev. G. Blunt, many years since.

Mr. Westwood exhibited four species of *Paussidæ* from Port Natal; also an *Elatér* from Italy, brought thence by Mr. Fortnum, who had remarked quantities of males attracted to and flying round a female, after the manner of *Bombyces*.

The President had once observed several males of *Ptenicérus sanguinicollis*, fully developed under the bark of a tree, but not one female was visible, until he found some deep in the wood, and which, although mature, not having emerged into activity, the males appeared to be waiting for.

Mr. Westwood exhibited a piece of pound-cake infested to the centre with *Myrmica domestica*, and it was remarkable that at this season, when swarms of winged females appeared, all those herein were apterous.

Mr. Westwood also exhibited a box containing a collection of angler's flies, arranged according to the times of their appearance. It was interesting to find that the 'gray drake' and 'green drake' were but sexes of one species, and to be able to identify the species of the 'stone flies.'

Mr. Westwood showed some flies and their eggs, part of a cluster of sixty or seventy found in a tuft of hawthorn, about twelve miles from Derby, and sent to him by Mr. Spencer, who had remarked that each fly seemed to remain as a protector over the eggs it had deposited. They were identified as *Atheryx Ibis*.

A letter to Mr. Westwood, from Colonel Hearsey, now in India, was read, detailing, among other interesting matters, some entomological observations that his constant occupation with military duties had not hindered him from making.

Some observations on the influence of slight changes of temperature on butterflies, by John Davy, Esq., M.D., F.R.S., &c., addressed to W. Spence, Esq., were read.—*J. W. D.*

The Birds of Oxfordshire and its Neighbourhood.

By the Reverends ANDREW and HENRY MATTHEWS.

(Continued from page 2433).

CLASS II.—*Summer Visitors.*

Under the name of summer visitors are comprised all those elegant birds whose advent to our shores is so anxiously looked for as the harbinger of spring, and whose melodious notes add so much to the

charms of that delightful season. At present we shall confine ourselves to an enumeration of the species, amounting to thirty, which usually visit this part of the kingdom, and refer your readers to the conclusion of the general list for the dates of their migrations.

Hobby (*Falco subbuteo*).

Red-backed shrike (*Lanius collurio*).

Spotted flycatcher (*Muscicapa grisola*).

Pied flycatcher (*Muscicapa atricapilla*).

Redstart (*Phœnicura ruticilla*).

Whinchat (*Saxicola rubetra*).

Grasshopper warbler (*Salicaria Locustella*).

Sedge warbler (*Salicaria Phragmitis*).

Reed warbler (*Salicaria arundinacea*).

Nightingale (*Philomela lusciniæ*).

Blackcap (*Curruca atricapilla*).

Garden warbler (*Curruca hortensis*).

Common whitethroat (*Curruca cinerea*).

Lesser whitethroat (*Curruca garrula*).

Wood warbler (*Sylvia sibillatrix*).

Willow warbler (*Sylvia trochilus*).

Chiff-chaff (*Sylvia Hippolais*).

Ray's wagtail (*Motacilla flava*).

Tree pipit (*Anthus arboreus*).

Wryneck (*Yunx torquilla*).

Cuckoo (*Cuculus canorus*).

Swallow (*Hirundo rustica*).

Martin (*Hirundo urbica*).

Sand martin (*Hirundo riparia*).

Common swift (*Cypselus murarius*).

Nightjar (*Caprimulgus Europæus*).

Turtle dove (*Columba turtur*).

Common quail (*Coturnix vulgaris*).

Great plover (*Ædicnemus crepitans*).

Landrail (*Crex pratensis*).

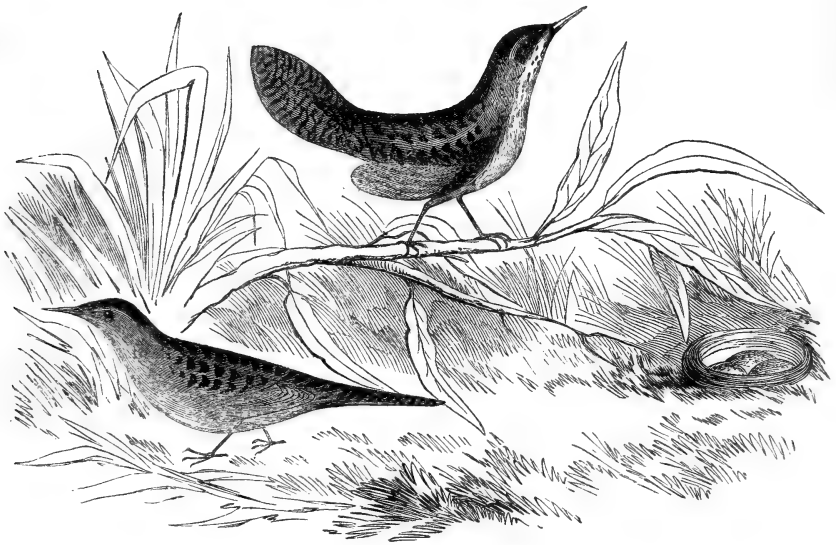
Hobby (*Falco subbuteo*). We have often succeeded in keeping birds of this species through the winter, in the open air, and at liberty. When taken young they soon become very familiar. A male which we had reared from the nest lived in the garden four years, without appearing at all affected by the cold weather: he was at last, much to our regret, killed by accident. In May, 1834, a beautiful pair, male and female, were caught by the legs in a common vermin-trap, at the same instant, in Weston Wood: they were luckily uninjured, and lived some time after in confinement.

Pied Flycatcher (*Muscicapa atricapilla*). The pied flycatcher is not often found in this neighbourhood. On the 23rd of April, 1848, I saw a fine male in Middleton Park: he was not at all shy, but allowed me to approach several times within a few yards.—A. M. A pair in our collection were shot near Oxford a few years since, and it has also been observed near Fringford, in this county, by Mr. Roundell.

Whinchat (*Saxicola rubetra*). The name of the whinchat was inadvertently inserted in the list of our resident birds; but as we can find no note of its having been seen in this neighbourhood during winter, it does not appear to have any connexion with that class.

Grasshopper Warbler (*Salicaria Locustella*). This elegant bird is by no means rare here; but from its shyness and singular habit of

concealing itself in the grass and sedge growing amongst underwood, it is very difficult to capture. It is very rarely seen on the wing, but runs upon the ground with great agility, often jerking its tail and pricking up its head. Thick sedgy coverts, in retired situations, are its favorite haunts; and here, perched on the topmost spray of a low bush, it will continue its rapid ticking noise for a surprising length of time without any intermission: at its commencement the note is very faint, but gradually becomes louder, till at length it may be heard for some distance: on the slightest alarm the song is stopped, and the ticker, speedily betaking himself to the ground, wends his way to another bush, and ascending it soon begins again. This note



Grasshopper Warblers (*Salicaria Locustella*).

is common to, and equally strong in, both sexes, but is seldom heard after the young are hatched. We once found a nest of this species containing five eggs: they were flesh-coloured, thickly speckled with reddish brown, particularly at the larger end, and appeared large in proportion to the size of the bird. The nest was built of coarse herbage, curiously placed under a clod of earth, and hidden from view by the long grass which hung over it.

Reed Warbler (*Salicaria arundinacea*). This very local and pretty species is met with during the summer in one small covert near this

village. It is one of the latest of our summer visitors, seldom arriving before the end of May.

Nightingale (*Philomela lusciniæ*). The nightingale is very plentiful in this neighbourhood, and sometimes remains here unusually late in the autumn. On the 10th of November, 1836, a cat brought in a female of this species, which she had killed but a few minutes before.

Garden Warbler (*Curruca hortensis*). Towards the latter part of the autumn this bird frequents our kitchen gardens in great abundance. In common with other gardeners, we formerly supposed that whitethroats, and indeed all the species of the genus *Curruca*, were very destructive to late crops of peas. The injustice of this accusation was a few years ago pointed out to us by a person in the village, who had had the good sense to investigate the matter by opening two or three of these birds, which he had shot in the act, as he thought, of robbing his peas: in no case did the stomach contain any particle of a pea; on the contrary, each one was filled with blights and other small insects. On hearing this we determined to discover who were the real depredators; and on examining a crop of peas found among them, as usual, plenty of whitethroats, but no other birds: this certainly looked very suspicious, but, having withdrawn a little way, we waited to watch their proceedings: no sooner were we fairly out of sight than a host of greenfinches, sparrows and tomtits, came down from the neighbouring trees, and at once recommenced their attack on the tender pods. We killed and opened several on the spot, whose crops contained evidence sufficient to convict the whole race. It is almost unnecessary to add, that since that time the warblers have enjoyed themselves in unmolested security upon our premises.

Wood Warbler (*Sylvia sibillatrix*). We have only once met with this beautiful bird in our own neighbourhood. A few specimens have been killed near Oxford, but it is far from common in this part of the kingdom.

Cuckoo (*Cuculus canorus*). On the 23rd and 24th of September, 1848, a cuckoo was heard singing in the early part of the morning,—a very unusual occurrence at that season of the year. Young birds of this species will occasionally remain here as late as the end of October, but we have never succeeded in keeping them through the winter.

Swallow (*Hirundo rustica*) and Martin (*Hirundo urbica*). The following extraordinary appearances of these birds have come under our observation. On the 28th of February, 1846, one swallow was seen near this village, and three more on the following day. The

latest appearance of this species of which we have any notice occurred on the 5th of November, 1843, and of the martin on the 28th of the same month, in 1837.

Common Quail (*Coturnix vulgaris*). Mr. Goatley has favoured us with two notices of the quail having been found in Oxfordshire during the winter; and two instances of a similar nature have also occurred to ourselves, viz., on the 10th of November, 1846, and on the 9th of December, 1848: these birds were in fine plumage and quite fat.

Landrail (*Crex pratensis*). Like the quail, this species occasionally remains with us during the winter. We have met with them in this parish on the 27th of December, 1841, and on the 13th of December, 1848. Mr. Roundell informs us that in the winter of 1846-7, during a severe frost, with snow on the ground, a landrail was constantly seen feeding with the fowls in a farm-yard, in the parish of Fringford, in this county; and that another specimen was killed near the same place, in January, 1844.

CLASS III.—*Winter Visitors.*

To our regular winter visitors, such as the snipe and fieldfare, we have added the numerous species of water-fowl whose visits—however few and far between—have always occurred at that particular season of the year. We feel justified in so arranging them for this reason, that, were they equally plentiful, their appearance would probably be as regular as that of the above-named species.

Merlin (<i>Falco Æsalon</i>).	Spotted redshank (<i>Totanus fuscus</i>).
Long-eared owl (<i>Otus vulgaris</i>).	Common redshank (<i>Totanus calidris</i>).
Short-eared owl (<i>Otus brachyotos</i>).	Greenshank (<i>Totanus glottis</i>).
Great gray shrike (<i>Lanius excubitor</i>).	Ruff (<i>Machetes pugnax</i>).
Fieldfare (<i>Turdus pilaris</i>).	Woodcock (<i>Scolopax rusticola</i>).
Redwing (<i>Turdus iliacus</i>).	Great snipe (<i>Scolopax major</i>).
Gray wagtail (<i>Motacilla boarula</i>).	Common snipe (<i>Scolopax Gallinago</i>).
Snow bunting (<i>Plectrophanes nivalis</i>).	Jack snipe (<i>Scolopax Gallinula</i>).
Mountain finch (<i>Fringilla montifringilla</i>).	Curlew sandpiper (<i>Tringa subarquata</i>).
Golden plover (<i>Charadrius pluvialis</i>).	Knot (<i>Tringa Canutus</i>).
Ringed plover (<i>Charadrius hiaticula</i>).	Dunlin (<i>Tringa variabilis</i>).
Kentish plover (<i>Charadrius Cantianus</i>).	Purple sandpiper (<i>Tringa maritima</i>).
Gray plover (<i>Squatarola cinerea</i>).	Red-necked phalarope (<i>Phalaropus hyperboreus</i>).
Turnstone (<i>Strepsilas interpres</i>).	Gray-legged goose (<i>Anser ferus</i>).
Sanderling (<i>Calidris arenaria</i>).	Bean goose (<i>Anser segetum</i>).
Oyster-catcher (<i>Hæmatopus ostralegus</i>).	

White-fronted goose (<i>Anser albifrons</i>).	Velvet scoter (<i>Oidemia fusca</i>).
Bernicle goose (<i>Anser leucopsis</i>).	Common scoter (<i>Oidemia nigra</i>).
Brent goose (<i>Anser Brenta</i>).	Pochard (<i>Fuligula ferina</i>).
Egyptian goose (<i>Anser Egyptianus</i>).	Ferruginous duck (<i>Fuligula Nyroca</i>).
Canada goose (<i>Anser Canadensis</i>).	Scaup duck (<i>Fuligula Marila</i>).
Hooper (<i>Cygnus ferus</i>).	Tufted duck (<i>Fuligula cristata</i>).
Bewick's swan (<i>Cygnus Bewickii</i>).	Long-tailed duck (<i>Harelda glacialis</i>).
Common shieldrake (<i>Tadorna Vulpanser</i>).	Golden-eye (<i>Clangula vulgaris</i>).
Shoveler (<i>Anas clypeata</i>).	Smew (<i>Mergus albellus</i>).
Gadwall (<i>Anas strepera</i>).	Red-breasted merganser (<i>Mergus serrator</i>).
Pintail duck (<i>Anas acuta</i>).	Goosander (<i>Mergus Merganser</i>).
Bimaculated duck (<i>Anas glocitans</i>).	Great northern diver (<i>Colymbus glacialis</i>).
Teal (<i>Anas Crecca</i>).	Black-throated diver (<i>Colymbus arcticus</i>).
Wigeon (<i>Anas Penelope</i>).	Red-throated diver (<i>Col. septentrionalis</i>).
Eider duck (<i>Somateria mollissima</i>).	

Short-eared Owl (*Otus brachyotos*). This species is more common with us than the long-eared owl. In October and November, 1829, they were very plentiful in this neighbourhood. They appear to fly by day with less inconvenience than any other species of the family, and are in the habit of resting on the ground, in places where there is abundance of long rough grass: indeed we have never met with them in any other situation.

Great Gray Shrike (*Lanius excubitor*). Three specimens of the great gray shrike have at different times been killed near this place, and we have received several notices of its occurrence in other parts of the county: the earliest of these is on the 5th of August, 1810; all the rest have been during the winter.

Fieldfare (*Turdus pilaris*). Towards the end of February and the beginning of March, when the season has been unusually mild, the song of the fieldfare has sometimes been heard here in the evening. Its notes are musical and lively, like those of the thrush, though not so varied, nor is the song so long sustained; but in woods, where large flocks of them are assembled to roost, the effect produced by their many-tongued harmony is extremely beautiful. We possess a pretty variety of this species, with the head and neck of a pure white.

Gray Wagtail (*Motacilla boarula*). In the spring of 1846, a specimen of this beautiful bird, which had assumed the black throat of the summer plumage, was killed in our garden.

Snow Bunting (*Plectrophanes nivalis*). A rare winter visitor, seldom making its appearance, except in the severest seasons.

Ringed Plover (*Charadrius hiaticula*). Both this species and its

congener, the Kentish plover (*C. Cantianus*), sometimes visit us during the winter. The occurrence of the latter is, however, rare.

Spotted Redshank (*Totanus fuscus*). Three specimens of this rare and very elegant bird have been shot on Otmoor, in this county. The first, a female, was killed in February, 1835; the other two, a male and female, in the same month of the following year.

Greenshank (*Totanus glottis*). The greenshank is rarely found in this part of the kingdom. A pair in our collection were killed near Oxford, in January, 1838. Also "near Sunning, Berkshire, in December, 1801."—*Dr. T.*

Ruff (*Machetes pugnax*). The ruff is often found here in the winter, but we have never met with it in the summer plumage: we once obtained a specimen of the male at the end of April, which still showed no appearance of any change.

Woodcock (*Scolopax rusticola*). Occasionally remains to breed here. In addition to the three instances of this fact recorded by Mr. Goatley (Zool. 2148), a fourth occurred some years since, in a wood near Wootton, the seat of the Duke of Buckingham.

Great Snipe (*Scolopax major*). A few specimens of the great snipe have at different times been killed in this part of the country. The last of these was shot on the banks of the Isis, close to the city of Oxford, in 1839, by a servant of Worcester College.

Common Snipe (*Scolopax Gallinago*). Dr. Tomkins informs us, on the authority of the MSS. of Dr. Lamb, that this species and the jack snipe also were formerly in the habit of breeding in the marshes near Wokingham, Berkshire. Both are very abundant here throughout the winter, the former sometimes arriving in vast numbers about the middle of August: in that month, in 1838, we witnessed the passage of a flock which must have contained several thousands of these birds: they were at the time proceeding in a southerly direction, at a tolerably slow pace, and occupied a considerable time in passing. Towards the end of November they generally become very fat: we have often killed them at that time weighing from five to seven ounces each. Worms, and (during frost) the small leeches and other animals commonly found among stones near the margin of rivulets, appear to be their usual food.

Curlew Sandpiper (*Tringa subarquata*). Several specimens of this bird have been killed near Oxford during the winter. This remark applies equally to the knot (*T. canutus*) and purple sandpiper (*T. maritima*).

Dunlin (*Tringa variabilis*). Is a common winter visitor in this part

of the kingdom, and is also occasionally met with after it has partly assumed its summer plumage.

Red-necked Phalarope (*Phalaropus hyperboreus*). In the winter of 1834 a red-necked phalarope was found, in an exhausted state, on Shotover Hill, near Oxford. It was killed by a stroke from a riding-whip as it attempted to escape, and afterwards taken to Mr. P. Forrest, of that city, by whom it was preserved. Although the foregoing is the only instance of the capture of the red-necked phalarope in this part of the country, yet, as its habits would render it without doubt a winter visitor, whenever it should chance to migrate so far south as Oxfordshire, it does not seem referrible to any class with so much propriety as the present.

Gray-legged Goose (*Anser ferus*). This species is always common during the winter months, and in some years unusually abundant. The bean goose (*A. segetum*), bernicle goose (*A. leucopsis*), and brent goose (*A. Brenta*), also visit us, but less frequently.

White-fronted Goose (*Anser albifrons*). Appears in small flocks, but is an uncertain visitor, and only found in the severest seasons.

Egyptian Goose (*Anser Egyptianus*). A specimen of this bird was killed on a large piece of water at Shelswell, in this county, in 1822.—*R.* Another was shot on the lake in Blenheim park, by the Duke of Marlborough's gamekeeper, in December, 1847. Also on the Kennet, at Thatchem, in Berkshire, January, 1795.—*Dr. T.*

Canada Goose (*Anser Canadensis*). In February, 1838, a fine male of this species was shot on Port Meadow, near Oxford; and in the winter of 1845 another was killed on Otmoor, about two miles from this place.

Hooper (*Cygnus ferus*). In the severe winter of 1837-8 great numbers of wild swans visited this part of the kingdom. On the morning of the 6th of February a flock of fifteen made a descent upon the kitchen garden of these premises, evidently with the intention of attacking a bed of cabbages, from which the snow had been thawed. The appearance of these noble birds when only a few feet from the ground, with the sun shining on their dazzling plumage, and all within an area of fifty yards diameter, was one of the finest it is possible to conceive. They did not, however, settle, but continued to wheel round the spot for some minutes, until a shot was fired, which severely wounded one of them: they then quickly left the place. The wounded bird, having separated from the flock, was observed to sink into a ditch at no great distance, where, being unable to rise on the wing again, he was easily captured.

Bewick's Swan (*Cygnus Bewickii*). In the same winter in which the foregoing species was so abundant, two specimens of Bewick's swan were killed near Oxford. Several instances of the mute swan (*C. olor*), in an apparently wild state, also occurred during that season: these, it is true, might have been tame birds, which had forsaken their usual haunts to join the wandering bands of their allies: be this as it may, in their habits they altogether differed from the really tame swans, which often visit us in parties of three and four during the spring. It was also reported that the Polish swan (*C. immutabilis*) had been met with near Oxford about the same time, but of this we have no certain information.

Common Shieldrake (*Tadorna Vulpanser*). We seldom pass through the winter without a visit from this fine bird. A few specimens also of the shoveler (*Anas clypeata*) are generally killed during the season.

Gadwall (*Anas strepera*). In January, 1833, we obtained a male, and in the following winter a female of this species, both of which had been shot near Stanlake. It has also been met with in other parts of the county.

Bimaculated Duck (*Anas glocitans*). We insert this species on the authority of Dr. Latham, in whose account of the bimaculated duck, in vol. x. p. 331, the following notice occurs,—“Taken in a decoy near Sir G. Turner's, at Ambroseden, Bucks, in 1771.” The place here alluded to we suppose to be the decoy at Boarstall, near Otmoor, which is at no great distance from Ambroseden Park.

Eider Duck (*Somateria mollissima*). “Once killed at Sunning, near Reading, during a very severe frost.”—*Dr. T.*

Velvet Scoter (*Oidemia fusca*). Rare: we have seen specimens from the neighbourhood of Oxford during severe winters. “A pair were shot near Wargrave, Berks, in January, 1795.”—*Dr. T.*

Common scoter (*Oidemia nigra*). Both this species and the pochard (*Fuligula ferina*) very frequently visit us during the winter.

Ferruginous Duck (*Fuligula Nyroca*). “A bird of this species was shot on a fish-pond at Cornwell, near Chippingnorton, December 3, 1847.”—*G.* A pair were killed near Oxford in the year 1832.—*K.*

Scaup Duck (*Fuligula Marila*). This is one of our commonest winter visitors. On Christmas-eve, 1829, a scaup duck was caught in the basin in the quadrangle of Christchurch College, Oxford, where it had settled in company with two others.

Long-tailed Duck (*Harelda glacialis*). In the winter of 1840 a young male of this species was killed near Standlake, in this county.—*G.* Also on the Isis, near Kennington, in January, 1846.—*K.*

Golden-eye (*Clangula vulgaris*). Females and immature males of this species are very frequently met with in this neighbourhood. The adult male, however, is not often seen.

Smew (*Mergus albellus*). The foregoing remark on the golden-eye is equally true as regards the present species: for although many females and young birds are annually killed in this county, yet the old males seldom appear, except in the severest seasons. In January, 1838, three adult males were killed at one shot on the Isis, near Oxford.

Red-breasted Merganser (*Mergus serrator*). A fine specimen of this bird was killed on Otmoor, in February, 1838; and in the winter of 1841 two others near Cassington, in this county. A pair, male and female, were shot near Reading in 1795.—*Dr. T.*

Goosander (*Mergus Merganser*). Is often to be met with in our rivers during severe frosts, but seldom pays us a visit in milder weather.

Great Northern Diver (*Colymbus glacialis*). A northern diver, in the immature plumage, was found in a garden on Headington Hill, near Oxford, one morning, after a remarkably stormy night, in October, 1824. It was kept alive at the Anatomy School during six weeks, and is now preserved there. The foregoing account was kindly communicated to us by Dr. Kidd, the Regius Professor of Anatomy. Other instances of its capture have also occurred: in 1845 a fine specimen was shot at King's Weir, near Oxford. In 1794 at Pangbourn and at Maidenhead; and in January, 1810, near Newbury, in Berkshire.—*Dr. T.*

Black-throated diver (*Colymbus arcticus*). A young bird of this species was shot near Cassington, in this county, in the winter of 1828.—*K.*

Red-throated Diver (*Colymbus septentrionalis*). Is occasionally found in this neighbourhood during winter.

CLASS IV.—*Passing Visitors.*

This class must evidently be subject to vary more than the others according to each separate locality, being intended to contain such species only as spend neither the summer nor the winter in the particular spot in question, but make their appearance at the intermediate seasons, while on their passage to the extreme limit of their migrations. It is, therefore, difficult to determine with accuracy how many of our

migratory birds may strictly be called passing visitors. Perhaps more should have been added, but the habits of the following four seem to show the characteristics of this class more strongly than any others.

Ring ouzel (*Merula torquata*).

Dotterel (*Charadrius morinellus*).

Wheatear (*Saxicola Œnanthe*).

Common sandpiper (*Totanus hypoleucos*).

Ring Ouzel (*Merula torquata*). Visits this part of the kingdom in the latter part of the autumn and in the spring. At those seasons it may frequently be met with on the hills near Stokenchurch, belonging to the Chiltern range.

Wheatear (*Saxicola Œnanthe*). Is common in this neighbourhood in the spring and autumn months, and also occasionally breeds here; but the great increase of its numbers at the periods of its migrations inclines us to place it among our passing visitors.

Dotterel (*Charadrius morinellus*). This species visits us sparingly in the spring and autumn, but is never seen at any other season of the year.

Common Sandpiper (*Totanus hypoleucos*). Also appears at the same seasons as the dotterel, but with less regularity, and is occasionally found at times which would lead one to suppose that it had bred in the neighbourhood. At the end of July, 1847, we observed a bird of this species settle near a brook, across which there stood a rail about three feet above the water. Instead of rising, as we approached, from the margin of the stream, the sandpiper was, to our astonishment, quietly perched upon the rail, with as much ease as though he had been an Insessorial bird.

A. & H. MATTHEWS.

(To be continued).

Occurrence of the Oviparous Lizard (Lacerta agilis) and the Natterjack (Bufo calamita) near Liverpool—I know not what localities have yielded *Lacerta agilis* and the Natterjack; but during a ramble over the sand-hills in this neighbourhood, I to-day captured specimens of both. They were the only Reptilia I saw, and were far from abundant.—*Edmund Thomas Higgins; Southport, near Liverpool, August 5, 1849.*

The Great Sea Serpent.—Mr. J. A. Herriman, commander of the ship Brazilian, now lying near the principal entrance of the London Dock, makes the following curious and interesting statement:—

“He left the Cape on the 19th of February, running with a strong south-easterly

wind for four days. On the morning of the 24th the ship was becalmed in latitude 26° south, longitude 8° east, being about forty miles from the place in which Captain M'Quhae, R.N., is said to have seen the great sea-serpent. About eight o'clock on that morning, whilst the captain was surveying the calm heavy rippleless swell of the sea through his telescope, the ship at the same time heading north-north-west, he perceived something right abeam, about half a mile to the westward, stretched along the water to the length of about twenty-five or thirty feet, and perceptibly moving from the ship with a steady sinuous motion. The head, which seemed to be lifted several feet above the waters, had something resembling a mane, running down to the floating portion, and within about six feet of the tail it forked out into a sort of double fin. Having read at Colombo the account of the monster said to have been seen by Captain M'Quhae in nearly the same latitude, Mr. Herriman was led to suppose that he had fallen in with the same animal, or one of the genus; he immediately called his chief officer, Mr. Long, with several of the passengers, who, after surveying the object for some time, came to the unanimous conclusion that it must be the sea-serpent seen by Captain M'Quhae. As the Brazilian was making no headway, Mr. Herriman, determining to bring all doubts to an issue, had a boat lowered down, and taking two hands on board, together with Mr. Boyd, of Peterhead, near Aberdeen, one of the passengers, who acted as steersman under the direction of the captain, they approached the monster, Capt. Herriman standing in the bow of the boat, armed with a harpoon, to commence the onslaught. The combat, however, was not attended with the danger which those on board apprehended, for on coming close to the object it was found to be nothing more than an immense piece of sea-weed, evidently detached from a coral reef, and drifting with the current, which sets constantly to the westward in this latitude, and which, together with the swell, left by the subsidence of the gale, gave it the sinuous snakelike motion.

"But for the calm which afforded Capt. Herriman an opportunity of examining the weed we should have had another 'eye-witness' account of the great sea-serpent; Mr. Herriman himself admitting that he should have remained under the impression of having seen it. What appeared to be head, crest, and mane of the *immensum volumen*, was but the large root which floated upwards, and to which several pieces of the coral reef still adhered. The captain had it hauled on board, but, as it began to decay, was compelled to throw it over. He now regrets that he had not preserved it in a water-butt for the purpose of exhibition in the Thames, where the conflicting motion produced by the tide and steamers would in all probability give it a like appearance."

A curious accident occurred on board the Brazilian during her outward-bound voyage to Colombo. Whilst in latitude 39° south, longitude $28^{\circ} 30'$ east, off the Agulhas Bank, at midnight, she was struck by lightning, which killed a seaman named David, on the top gallant-mast, and after destroying some gearing in its descent, and splintering a portion of the deck near the mainmast, descended into the hold, and dissipated itself among the cargo, without doing any other injury than filling the between decks with a suffocating, sulphurous smell. Several others of the crew were struck down and stupified by the shock, but without serious injury. The most extraordinary circumstance connected with the accident was the effect the shock had on the compasses of the ship, the polarity of which was totally destroyed, and had only recovered their proper magnetic powers on the arrival of the vessel at Colombo. It is easy to conceive the difficulty which the loss of this valuable index occasioned to

the captain, who, however,—and it redounds greatly to his skill and ability as a seaman, when we take into account that the space traversed without this important adjunct to navigation was 2,700 miles of latitude—succeeded in bringing his vessel safely into port in the unprecedentedly short space of 101 days from London.—*Sun Newspaper*, July 9, 1849.

Abstract of a Paper, by John Quekett, Esq., "On the Structure and Mode of Growth of certain of the Tissues and Organs of the Trout (Salmo fario) after its exclusion from the Egg."*

The author commenced by describing in detail the different processes in the development of Fishes generally, which, according to Professor Owen, are six in number, viz.—1. *Semination*, or the development of the impregnating corpuscles called seminal animalcules or spermatozoa. 2. *Germination*, or the development of the germ or ovum, susceptible of impregnation. 3. *Fecundation*, or the act of impregnation. 4. *Toetation*, or development of the embryo within the ovum. 5. *Exclusion*, or expulsion of the generative product from the parent. 6. *Growth*, or development from the period of exclusion, or of extrication from a previously excluded ovum to maturity.

The author then stated that the last process was the only one to which attention would be particularly directed in the present communication.

Immediately after the ova have been brought into contact with the fertilizing fluid of the male, a series of changes commence; these, which have been investigated with great care by Vogt, in a species of Salmon, termed *Coregonus*, and by other continental physiologists in fishes of various kinds, may be described as follows. The first change that takes place is a separation of the chorion or outer membrane from that of the yolk or *membrana vitelli*. The germinal vesicle then becomes opaque, increases in size, and swells up beneath the *membrana vitelli*; the small granules diffused through the yolk become collected at the base of the swelling; a very short time after this the swollen part divides into two, which in the space of a quarter of an hour, are subdivided into four, then into eight, sixteen, and so on, until at the end of three or four hours the subdivisions are so small, as hardly to be perceptible, the yolk at this time presenting again a smooth appearance. The next stage to be observed, according to Professor Owen, is a slight separation of the yolk into two unequal parts, in the smaller of which two parallel ridges appear, termed the *lamina dorsales*; these soon unite and form the nervous axis, and the *chorda dorsalis*, the smaller portion of the yolk then splits into two layers, an outer and an inner; from the first are developed the brain, *vertebræ*, muscles, nerves and skin, and from the inner, the organs of digestion, circulation, respiration, &c. After the trunk is developed, the head and tail appear, the embryo then encircles the remaining yolk, and at this time its movements are perceptible. Whilst these changes are taking place in the external figure of the little embryo fish, the blood vessels, nerves, and vertebral column are being developed in

* Read before the Microscopical Society of London, June 20, 1849. (See Zool. 2506.)

the more internal part, until at last it makes its escape from its prison. The above description, the author stated, may be considered as a brief summary of the changes which take place within the eggs of fishes generally after impregnation in the natural manner, and he afterwards proceeded to describe the general appearance of the embryo of the Trout soon after its exclusion from the egg, the ovum from which it was obtained having been artificially impregnated, according to a plan first adopted by Mr. Gotlieb Boccius, and ably carried out by him, a full description of which is given in the '*Zoologist*' (*Zool.* 2193).

The author then mentioned that he was indebted to the liberality of Samuel Gurney, Esq., Jun., for the specimens from which he was enabled to draw up the following communication.

The first specimen which was received, and the one which furnished the greater part of the subjects of the paper, was two days old, about three quarters of an inch in length, and consisted of an elongated portion or body, to the lowest edge of which was attached a more or less oval vesicle termed vitellicle.

The body was thin and transparent, of a yellowish colour, with occasional dark spots of pigment, scattered principally about the dorsal region, and having in its centre a lighter part, which marked out the line of the vertebral column. It was provided with fins of great delicacy, of which the caudal, dorsal, and pectoral were most developed, but as yet had not attained their proper shape, the caudal being at its free edge, not much broader than the part of the body to which it was attached; the pectorals on the contrary were of the normal shape, and always in a rapid state of movement.

The head was short and broad, and the mouth terminating in a point, was placed in an inferior position. The eyes were very large in proportion to the size of the head, of a black colour, the iris covered with a silvery membrane, and having a large circular pupillary aperture.

The body tapered gradually from the head towards the tail, but was not constricted before the giving off the tail, as seen in all other fish.

The vitellicle was connected with the lower or abdominal surface of the body, and was of a yellowish colour, with one or more globules of darker yellow, situated in some portion near its point of attachment; it was supplied with large blood vessels, visible to the naked eye, especially on the left side, where a large vein is situated, which made a striking difference in the appearance of the two sides of the fish.

All the principal blood-vessels were visible to the naked eye, and even the heart, which was rapidly pulsating, immediately in front of the vitellicle.

When one of these little creatures was examined with a power of forty linear, the whole scheme of the circulation could be observed, and as the author stated, was the most wonderful of all the phenomena exhibited by the microscope: he thought proper first to devote attention to it.

At this early stage the heart, situated immediately in front of the vitellicle, and in that part which might be called the neck, was found to consist of two parts or cavities, one large and flabby, the auricle, the other smaller and more compact, the ventricle; arising from this last, was seen a straight vessel which passed towards the head, and divided into a number of small branches, each one going to a rudimentary branchial arch and bending back, united to form a single vessel, the aorta, which ran in a straight course, below the vertebral column towards the tail, where it expanded into two principal branches, which were further subdivided and supplied one side of each

of the delicate cartilaginous rays upon which the membrane forming the caudal fin was spread. In its course it gave off numerous branches termed intercostal, to supply the ribs and their muscles, and then another large branch termed cœliac, which is distributed to the rudimentary stomach and alimentary canal; the principal trunk given off, being that which divides into numerous branches to supply the right side of the vitellicle, and communicates with the veins on its left side, which ultimately join and form the large vein termed mesenteric. Another large trunk is given off from the aorta, and bends downwards nearly at right angles, and suddenly turns back and empties itself into one or other of the large branches which go to form the caval vein. The intercostal arteries are given off in pairs; one pair to supply each rudimentary vertebra, and the adjoining muscular and cutaneous parts; these terminate in the vena cava. In the caudal region, the aorta sends off intervertebral branches, which pass upwards and downwards on each side, and supply the muscular substance of the tail. The vena cava commences in the tail. The capillary branches of the aorta, forming loops at the extremities of the cartilaginous rays, unite into three or four large branches, which terminate in a vein which runs in a canal immediately beneath the aorta, receives branches from the intercostal, and all the other arteries in the abdomen, and ultimately terminates in the auricle. Immediately at the spot in which the caudal veins terminate, may be observed a pulsating cavity or heart, whose office is clearly that of assisting the flow of blood towards the abdomen; the credit of the discovery of this organ in the eel is given to Dr. Marshall Hall, but it will be clear from the following description, that it was known to Leuwenhoeck.

“When I fixed these small eels before the glass, and fixed my eye upon the fin near the tail, I saw with greater admiration than ever I did in my life before, the circulation of the blood, and that in so many sundry places; so that if I should delineate the little space composed thereof, it would not seem credible to most men: and when I came to contemplate the end of the bone, I saw, that very near to the jointing of the last joint, many very small veins did meet together, and make them one great one, when I took it for granted that there was a valvula, for there was a strange and quick pushing forwards, after such a manner, as if we saw our blood pushed forward in an artery before our eyes; nay, this pushing was so quick one after the other, that with our mouth we could not so quickly pronounce one syllable after another; in short, this contemplation did far exceed all the strange and pleasant ones, that ever mine eye did behold before.”

In the early stage, the pulsations of the heart could be distinctly observed in front of the vitellicle, a little red blood could likewise be seen in the parts about to become the gills; this increased in size day after day, until at last capillary loops were visible in the same situations; these in some parts gave off small branches from their sides; the deposit of pigment about this time, which was when they were about two weeks old, was so abundant, that all further trace of vessels into the gills was lost. Whilst these changes were going on in the blood vessels, corresponding changes were also taking place in the vitellicle; the arteries distributed upon its outer surface became smaller and paler, and their circulation less rapid; the same thing occurred in the veins; the vitellicle itself was altered in shape, becoming more elongated, and its coats more opaque from a deposition of dark-coloured matter over the membrana vitelli, and from the thickening of the cuticle which was gradually extending over it. When the author first saw the vitellicle, he imagined, that after it had afforded to the little

fish all its supply of nutriment, that it would drop off, but he soon found that such was not the case, but that it would be taken into the abdomen: this was made manifest by an extension and growth of a delicate layer of muscular fibres over its outer surface, and by a formation of new vessels, which were found to be continued from, or to be branches of the intercostal vessels before described; and as at this stage the author stated there were some points of great interest to be observed in the development of these new vessels, it became necessary to mention them here, as there were very few places in the animal body, in which the growth of new tissues could be so well studied. About the fourteenth day a few straight vessels were seen upon that part of the vitellicle which was attached to the body; each of these, in most cases, ended in a small mass of extravasated blood, and if examined in a few hours, it could be seen that each mass of blood was acted on by the motion of the blood of the vessel; the next stage to be observed was an increase of one of the masses of blood, and their becoming of a curved figure; the same changes were taking place in other masses in the neighbourhood, and at last two adjoining masses would coalesce and form a loop, the contents of which, after another short period, would be under the influence of the general circulation; first being gradually pushed on, and then recoiling and producing an oscillatory movement, and last of all a continuous current was established in it; as this was not the most common mode of the formation of new vessels, the author thought proper to allude to it, as it served to explain how masses of blood, which have become extravasated, may become supplied with new vessels.

(To be continued.)

Colias Hyale.—The occurrence of this butterfly in such profusion, in the years 1835 and 1842, as recorded in the 'Entomologist' (Entom. 384), and the very ingenious hypothesis there broached by Mr. Desvignes that its visits were septennial, induced many of our older entomologists to consult their note-books, and it was found that the years 1821 and 1828 had been equally prolific. Its *septennium* is again complete in 1849, and at this bright hour of the morning, on this very 15th August, it should be flying about the lucerne and clover fields of our southern coasts: it will be very interesting to me to hear that this is the case.—*Edward Newman; August 15, 1849.*

Occurrence of Pamphila Comma near Salisbury.—I scarcely know whether *Pamphila Comma* may be considered an insect of sufficient rarity to justify a notice of its capture in the pages of the 'Zoologist.' It is, however, to say the least, an extremely local species, and till this summer I never myself happen to have met with it, except some years ago, in the vicinity of Dover, and there finding only two specimens, owing probably to my not being on the spot at the best season for its flight; for where the insect does occur it generally seems to be in plenty. I venture, therefore, to state that I found *Pamphila Comma*, in good abundance, on a chalky slope in the grounds of Durnford manor-house, six miles from Salisbury, on the 19th of July. The insects were fresh and in good condition, apparently but recently produced from the chrysalis. The middle of July, therefore, may be considered as the time of its appearance. Many authors, *e. g.* Lewin, Haworth, Wood and Stephens, state August,

and even the end of August, to be the period of its flight; and Lewin names it the 'August skipper.' I perceive that Old Sarum, which is but a few miles from Durnford, is stated to be a locality for the species, and I have no doubt of its occurring in many places in that neighbourhood. I am at a loss to understand why Lewin should have expressed a doubt of *Pamphila Comma* being a distinct species, and considered it "but merely a variety of the large skipper" (*P. Sylvanus*), from which, however, it is abundantly distinct, not to mention also that *Sylvanus* appears much earlier in the season.—*W. T. Bree; Allesley Rectory, August 1, 1849.*

Occurrence of Heliothis marginata at New Brighton.—A male specimen of this rare moth, in good condition, was taken about the end of June last, at rest on the grass under a wall, by my nephew, Theodore Robson, of Liscard.—*Nicholas Cooke; Weaverham, August 13, 1849.*

Capture of Lithosia pygmaeola.—I have succeeded, in company with my friend Mr. Bouchard, in taking a few specimens of this new and rare *Lithosia*, discovered by me about seven years ago on the coast of Deal: only two specimens were taken at that time: these were named by Henry Doubleday, Esq. They are very local, being only found over a space of about four hundred yards in extent, and are very susceptible of change of weather, for on its being the least cold or windy not one will make its appearance for two or three days together, but lie secreted at the roots of the herbage: the females make their appearance some days later than the males, and are rather deeper in colour; their ova are of a bright yellow colour, and hatch in about three days. I have not yet discovered their food, but hope to do so in a little time. I have a few specimens more than I require for my own cabinet, and shall be most happy to oblige a brother of the net wanting the same.—*H. T. Harding; 1, York Street, Church Street, Shoreditch, August, 1849.*

Occurrence of Rhodaria sanguinalis in England.—This lovely little *Pyrallis* was taken on the 25th of June, at New Brighton, Lancashire, by Stephen Robson, and sent to me to name by my friend Nicholas Cooke, of Warrington. I had previously received two specimens, in rather a faded condition, from the fens, taken I believe on the border of Monk's Wood. Mr. Cooke's specimen is in beautiful preservation.—*Henry Doubleday; Epping, August 17, 1849.*

On setting Lepidoptera flat.—When your worthy correspondent, Mr. Douglas, stated that the round* method of setting was not natural, he most assuredly overlooked the fact that insects in their natural state *have not a flat appearance*. The only species that I know whose wings can at all be said to come under this denomination are *Ægeria apiformis* and *Trochilium Ichneumoniformis*, with their allied species. Yet these, as also the *Noctuæ* and *Geometræ*, Mr. Douglas sets round. So *his tune* begins in *one key* and ends in *another*. As to the species being more readily distinguished by their being set flat, I have no hesitation in affirming that there is not an entomologist in the kingdom who could not as readily distinguish any of my *Micro-Lepidoptera* as those set by my more experienced friend. We may be ignorant of the true name, being misled by description; but no sooner do we *compare* specimens, than, notwithstanding *every variety of setting*, the discovery is perfectly easy. We

* By being "set round," I mean the gradual sloping of the wings, not the mere rounding their extremities, although something may be said in defence of this, seeing that *Adela viridella* bends its wings so as to cover the extremity of the body.

have had recent examples enough to confirm this. "Three flats may indicate a major key." I am no musician; but to such of your readers as have no objection to a round with me, I beg to state that mine is a simple tune in the entomological key of C sharp.—*John Sircom, Jun.; Bristolington, July 28, 1849.*

On setting Micro-Lepidoptera flat.—Through the courtesy of my friend, Mr. Sircom, in sending me a copy of the foregoing note, I am enabled, although at present not of "the great majority," now to accept the invitation to have a "round" with him, which I wish to do in all amity. The object of my remarks (Zool. 2500) was to show that a small moth set flat was more easily examined than one set round, and I incidentally observed that the round method was not natural. Now, of course, these remarks are only applicable to a moth with the wings expanded, representing it in the position of flight; and I still contend that in this attitude the wings are more flat than round,—else how is it that in placing a moth on a rounded cork the wings have to be made to assume its curved form? If they were naturally rounded this would not be necessary. Moreover, we all know that if a moth set round be damped, the curve vanishes, and the wings return to their natural flatness. But with all deference to the intelligence of Mr. Sircom, he, in his anxiety to have a "round" and support his crotchet, has begun to play before he was in tune, and so has marred the melody of the fantasia he intended to play upon my air; in other words, he has not thoroughly understood me. His observations apply to moths in a position of rest; and though I might dispute his assertion that none are flat, yet, as it does not enter into the argument, I forbear. The whole matter is this,—that the rounded form usually given to the wings of Micro-Lepidoptera in setting is not natural, and is productive of much difficulty in determining minute characters; and that the flat method of setting is not unnatural, and affords every facility for examining the cilia and the smallest markings, especially those of the apex. Let, then, those persons who are conservative in such matters stand upon the ancient ways, good or bad, and transpose all the flats which their more ardent friends may send them: for my part, I confess that a better way is not less welcome to me because it is a novelty or of un-English origin.—*J. W. Douglas; 2, Eton Grove, Lee, August, 1849.*

Which is the best Pin for small Micro-Lepidoptera?—This is a question I am continually being asked; and as there are probably many collectors with whom I am not in correspondence, to whom the answer would be acceptable, I scruple not to publish my reply. Although the best pin for Tortrices and large Tineæ is undeniably D. F. Taylor and Co.'s (late Edelsten and Williams), No. 18; yet for all small Tineæ this is much too large, and the best pin for small Micro-Lepidoptera is the No. 1 of Knight and Son, Foster Lane, Cheapside; but parties purchasing these pins must calculate on having to throw more than half of them away, in consequence of the points being turned: this I fear is irremediable, in consequence of their extreme fineness, as the slightest contact with any hard substance—the mere shaking of a box in travelling spoils very many: yet it is the smallest pin I know, and I therefore recommend it, as with it an ordinary Lithocolletis can be pinned without destroying the thorax, which many entomologists persist in doing with Taylor's No. 18.—*H. T. Stainton; Mountsfield, Lewisham, July 25, 1849.*

Laws of Nomenclature.—1. The name first given to an insect by printed publication is always that which is to be retained. 2. No two species in the same genus should bear the same specific name: (in closely allied genera the same specific name should not in future be repeated). 3. The system of uniform termination of specific

names in particular groups of Lepidoptera, being contrary to the general practice of nomenclature in all other branches of Natural History, and having been found the parent of complexity, should not be persisted in.—Signed at Mountsfield, August 10th, 1849; J. F. Stephens, J. W. Douglas, H. T. Stainton, J. Jenner Weir, Geo. Bedell, W. J. Wild, William Wing, W. Thomson, jun., S. J. Wilkinson.

[I recollect some time ago a committee of the "British Association for the Advancement of Science" undertook to make laws on the same subject: after much labour, the only novelty they introduced was to begin proper names, when applied to species, with a small letter, thus—jupiter, juno, yarrell, swainson: the idea was not only novel, but profound, yet no one obeyed the law; and I believe my estimable friends, Wild, Wing, Wilkinson, and their coadjutors, will find that the novelties in their laws will share the same fate. In both codes there are good points, but none of these have the charm of novelty, neither do they require re-enactment.—E. Newman.]

*Catalogue of Tineidæ.**

[Although I am not disposed to value this little *brochure* as a complete or standard work, and although I totally disapprove of the want of uniformity in the termination of the names of divisions,—as *Crambina*, *Tineacea*, *Pterophoridae*,—yet it is but fair to mention that the author himself is perfectly aware of its incompleteness, as appears by his modest introduction, and that the discrepancy of the termination is probably designed, and is in strict accordance with the new "laws of nomenclature" published above. I hope all Lepidopterists will obtain the work, which, if not so perfect as it might be, will still be found useful. The author's design in its publication will appear from the following extract from his introduction.—E. Newman.]

"It appeared to me that whilst the different groups of Tineidæ were undergoing the searching revision requisite for a series of monographs, our collections would all be thrown into extreme confusion, from the fact of the extremely artificial nature of our present arrangement, in which cognate species are placed at a distance from each other, and several very heterogeneous species are placed together; and at the same time, owing to the vagueness of the descriptions of many species in Mr. Stephens' work, and generally the total omission there of the distinguishing characters of allied species, it had become no easy matter to get two entomologists to agree about the names of many of our species,—so that the exchange of marked lists of Tineidæ had become of little use, as each entomologist put a different interpretation on many of the species; by which it frequently happened that each of two correspondents would neglect to collect some species which the other wanted,—each applying the same name to a different species, and neither for a moment imagining that the species he collected was unknown to the other. In order to obviate these difficulties I have

* 'An Attempt at a Systematic Catalogue of the British Tineidæ and Pterophoridae. By H. T. STAINTON.' London: Van Voorst. 1849.

brought out the following Catalogue, which I am well aware is open to very grave objections, on the score that, in our present state of ignorance on the subject, it is imprudent to describe as new so many species; and I have no doubt the errors in synonymy will be found neither few nor far between. There is no doubt that a publication, however elaborate, in which there is any amount of error, does some harm; but were we to refrain from writing till we were certain of not committing error, we should never progress; and the question becomes merely one of degree, whether the publication does more good than harm, or more harm than good."

On the Habits and Economy of various Species of British Fossorial Hymenoptera.

—So little is known of the habits of many of the species of this interesting division of the aculeate Hymenoptera, that a record of the most minute fact is extremely desirable; for although it may be incomplete and unsatisfactory in itself, it may serve as a clew to other observers, who, being more fortunate, and finding Nature in a more communicative mood, may, by these seemingly trifling records, find the way to the very heart of her mystery: with these objects in view I send you a series of observations, taking the genera and species as arranged by Mr. W. E. Shuckard in his elaborate and beautiful essay on this tribe of insects.

Methoca ichneumonides. I suspect this insect to be parasitic upon the genus *Pompilus*, having observed a female pass in and out of the burrow of *P. viaticus*, and, on the *Pompilus* emerging, re-enter and remain some minutes in the nest.

Tiphia femorata. This insect is also probably parasitical. In the month of August, 1846, at Birch Wood, Kent, on turning up the droppings of horses and cows, in search of Coleoptera, I was surprised to find, under those which were dried up by the sun, numerous females of this species: one or two I found with only their heads protruding from burrows formed either by themselves or by some species of *Aphodius*, most probably the latter.

Sapyga punctata. This insect I observed in some numbers, in the summer of 1846, entering burrows in a dry sand-bank,—some conveying larvæ of Lepidoptera. I secured the contents of several cells, and bred two specimens of *Sapyga* from them. When full fed they form a brown, oval cocoon, of a tough consistency.

Pompilus affinis. I have detected this rare species with its prey, consisting of a large species of black spider.

Ammophila sabulosa. I have, on innumerable occasions, observed this insect with its prey,—a Lepidopterous larva,—but never as recorded by Mr. Shuckard, with spiders. *Ammophila*, according to Mr. Shuckard, walks backwards, dragging its prey with its mandibles: this is the case when the insect gets near to its burrow, but when at some distance it holds the caterpillar with its mandibles, and clasps it also with its intermediate legs, walking in a ludicrous manner upon the anterior and posterior legs. Usually dropping its prey a few inches from its burrow, it enters first to see that all is right; it then seizes its prey with its mandibles, and drags it in as described.

Miscus campestris. This local insect has precisely the same habit as the preceding.

Tachytes unicolor. This species I have observed at Weybridge, conveying a species of Orthoptera belonging to the genus *Acridium*.

Miscophus bicolor. This rare insect preys upon spiders, and burrows in sandy banks.

Astata boops. On the 6th of August, 1849, I observed the female—in the act of burrowing—constantly retreating backward, and kicking the loose particles to a short distance: another I captured at the moment she was entering her burrow, with a larva of *Pentatoma bidens*. I then carefully dug down to the bottom of the burrow, which was not more than three inches below the surface, and in the cell I discovered five other larvæ of *Pentatoma*, laid in regular order sideways: upon the outer one a small larva was feeding. This proves that the egg is deposited upon the first larva stored up, and the nest subsequently furnished with the required number.

Oxybelus uniglumis. This active little creature stores up flies, and deposits her egg upon the first she conveys in, as I have this year also verified.

Crabro cribrarius, *patellatus*, *cephalotes*, *vagus*, *vagabundus* and *leucostoma*. I have observed these prey upon various species of Diptera.

Crabro Wesmaeli, *Panzeri* and *albilabris*. Also prey upon minute Diptera.

Crabro subpunctatus. Preys upon gnats.

Crabro brevis. This small black species preys upon Halcicæ.

Cemonus unicolor. Burrows in bramble-sticks, and stores up small green Lepidopterous larvæ.

Diodontus minutus and *tristis*. Also burrow in bramble-sticks and putrescent wood, and store up Aphides.

Mellinus arvensis. This insect preys upon Diptera, and its instinct in capturing its prey is worthy of observation: in the autumn, of course, its prey abounds, and many species frequent the droppings of horses and cows: to these the *Mellinus* repairs, and should she not find any Diptera at the time of her arrival, she waits most patiently until some unlucky fly appears. I have frequently observed six or eight individuals of *Mellinus* waiting the arrival of prey.

Cerceris labiata. This species I captured at Weybridge, conveying *Colletes succincta*.—*Frederick Smith*; 5, *High Street, Newington, August, 1849*.

Note on the Habits of Lamia textor, &c.—In August, 1848, I captured and put into a box six specimens of *Aromia moschata* (five females and one male), and two specimens of *Lamia textor* (male and female), to see if any similarity of habit existed in the two species. I kept up a constant supply of fresh young branches of willow, occasionally sprinkling the whole with water: the *A. moschata* did not appear to feed, and all the females died within three weeks; but the male lived just double that time, contrary to what I had before noticed in both Coleopterous and Lepidopterous insects, for generally the female outlives the male. The *Lamia*, on the contrary, fed regularly as long as I could keep up a supply of young branches, and when that failed me I put in a large piece of the decayed timber: they occasionally bit off small pieces, but did not appear to eat any. One specimen died the end of March, the other the beginning of June, 1849, having lived eleven months; and perhaps would have now been alive had I not omitted the water, which they evidently require. Mr. Lean (Zool. 2404) says his experience and that of his friends is exactly the reverse of Mr. F. V. Jacques (Zool. 2374), and consequently of my own (Zool. 2245), as regards the nocturnal habits of *Lamia textor*. His time of capture does appear to be the reverse, so does the place in which he found them; but this doubtless helps to confirm the opinion of its being nocturnal; for he finds them in the hot sunshine, on the *osier stools*, where they have retreated during the day,—whereas we find them in the

evening, feeding on the young shoots, or crawling up evidently with that intention. This opinion was not founded on a single specimen, for the number captured by myself and Mr. F. V. Jacques (forty specimens) was, I think, sufficient to give us a good chance of observation.—*Stephen Barton; Maudlin Street, Bristol, July 10, 1849.*

Capture of rare Coleoptera, some of them new to Britain.—Having brought my spring entomological campaign to the close, I send you an account of some of my principal captures. The weather having been remarkably mild during the month of February, and the first half of March, I was rather successful in taking several good species of Coleoptera, even in that early season, in the neighbourhood of Ramsgate, where I was then residing. The country around that place, however, is ill-suited to the labours of the practical entomologist, being almost entirely arable, and under a high state of cultivation, and being held by the tenants at rack-rent, is far too valuable to admit of any portion of it being allowed to lie waste. There are no woods and very few trees—neither hedges nor flowery lanes, nor meadows, nor streams of water—the very cliffs themselves are perpendicular, and the tide washes their base, so that altogether it is as unpromising a locality for the Coleopterist, as well can be. The only spot that is at all productive of anything (and even *that*, from the nature of the soil, and other causes, is not very promising) is at Pegwell Bay, two miles from the town. There the chalk cliffs terminate, and are succeeded by a broken and rugged tract of ground, extending for merely a few hundred yards, which slopes toward the beach, and is clad with coarse herbage and dotted with thorn bushes, and in the summer adorned with a profusion of the plants of the common fennel, the last year's stumps only of which were visible at the period in question. Here I took during several visits which I was tempted to pay to the locality, a fine series of *Trachyphlæus spinimanus* and *alternans* in company with *squamulatus* and the common *scabriculus*. I found them in little bare places, where, lying quite motionless, they could hardly be distinguished from the small particles of earth, which they exactly resembled in colour. Here I took beneath the thorn bushes, lying torpid at the roots of the stunted herbage, about half-a-dozen specimens or more of *Otiorhynchus raucus*—a very slow and difficult method of procuring them, though at a subsequent period, when the bushes were in leaf, neither beating the bushes nor sweeping the herbage produced me a single specimen. From under a stump of one of these thorn bushes, a solitary *Plinthus caliginosus* was dug out by my son, and prematurely roused from his wintry and dark slumber to see the light of the sun, and lose sight of it for ever. On these slopes I also captured *Dromius truncatellus* and *fasciatus*; *Agonum 6-punctatum*; *Meloe brevicollis* and *cicatricosus*, the latter in considerable numbers. From other quarters I subsequently procured *Meloe variegatus*, but I have nothing to add respecting its natural habitat, beyond what is already known—'found at Newgate, near Margate, and on both sides of the North Foreland, under sea-weed, in cart-ruts leading to, and on the beach'—we can hardly in this account recognise any legitimate habitat. I am disposed to believe that they were carried thither by the tide from some other locality; most of the examples brought to me had been washed by the sea-water. But to return to Pegwell Bay. Under rejectamenta in sandy spots (which are very few and limited in extent), I took *Omasus anthracinus*, *Carabus consitus* (1 specimen), *Lopho Mannerheimii* (in profusion), and the very rare *Trechus atratus*, &c. This species has only occurred in England on two previous occasions. It was taken by Mr. S. Stevens on Bury Hill slopes near Arundel, and on the supposition that it was an undescribed species, was named by Mr. Waterhouse, *Trechus nigrinus*; it occurs,

however, on the continent, and is the *Trechus atvatus* of Dejean's work. A single specimen was taken by Mr. Wollaston in the Isle of Wight during a visit, which he paid me, in the Spring of 1846.

During the whole of April I was prevented, through indisposition and other causes from collecting, but at the beginning of May I again found newly-born specimens of *Lixus bicolor*, on the sand-hills near Deal; thus ascertaining satisfactorily that the species is double brooded; as also are *Hypera fasciculata* and *Limobius mixtus*, its companions. I also captured a single specimen of *Ceutorhynchus hirtulus*, *Germ.*; a few examples of which were taken last autumn in the same locality, by Mr. Walton, the Rev. Hamlet Clark, and myself, for the first time in this country, and on the plant, whose name it bears, I again took *Apion Sedi*, *Germ.*, which in September last, I had the pleasure of annexing to the list of our indigenous species? And here let me correct an error in my former communication on the Deal insects: I inserted erroneously the name of *Apion minimum* or *velox*; it was done without sufficient examination at the time, but when I was about to place the insect in my cabinet, I at once perceived the species to be distinct and entirely unknown to me, and upon sending it to Mr. Walton as something new, with (I believe) a suggestion that *Sedi* would be an appropriate name, I was pleased to learn that I had discovered the veritable *Apion Sedi* of Germar, of the existence of which species I had previously been unaware. In the same notice I mentioned the capture of a new *Nedyus*, which would probably be described by Mr. Walton, under the name of *Crux*; this insect, however, though also new to Britain, proves to be *Ceutorhynchus Aubii*, *Schon.* I should imagine that upon sandy heaths, where the dwarf *Sedum* grows, this *Apion* may be found, where patches of the plant exist without the intermixture of grass, otherwise the soil will prove to be of too compact a nature to allow these little creatures to penetrate and conceal themselves. In such spots, *Sarrotrium muticum* occurs in profusion: one day last September I took upwards of one hundred examples in less than an hour, and might have taken any number, nor were they less abundant (though I did not molest them), this spring, but it was amongst these that I discovered *Apion Sedi*, hitherto only sparingly, having had no opportunity of further search for it. It is a small species, somewhat allied to *A. humile*.

On the 8th of May I went to Dover in search of *Plinthus caliginosus*; but though I succeeded in procuring about three dozen, the weather was in general so wet, with cold east wind, during the week or more that I was there, that I was unable to procure anything else; and I proceeded to Tunbridge Wells. Here I have made numerous captures, although few of them perhaps of any importance; among these are:—*Gymnaëtron veronicæ*, *rostellum*, and *melanarius*, *Ger.* (*intaminata*, *Ste*), *Orobitis cyanea*, *Cæliodes Quercus*, *ruber* and *rubicundus*, *Sibinia potentillæ*, *Knoch.*, *Balaninus turbatus*, *Brachytarsus scabratus*, *Apion ebeninum*, *Hookeri*, &c.

Having ascertained, as I before observed, that *Lixus bicolor* is double brooded, I suspected that (judging from analogy) its allied species *Lixus angustatus* would be also, and accordingly determined to go and search for it, though it had previously been taken in autumn. This fine species was found by Mr. Walton last September, near Hastings, on a common species of upright thistle (*Cnicus palustris*), very abundant in meadows and woods, and which grows about the slopes below the Lovers seat, the original locality recorded by Mr. Curtis on the authority of Mr. Pickering, who took it there some years ago. The spot where it is found is part of a very extensive land-slip, known by the name of *Coverst* or *Govers*, as it is generally spelt, palpable cor-

ruptions from *Cove-hurst*—consisting of a long track of broken ground, which slopes from the cliff to the beach in a very wild, irregular and rugged manner, chiefly covered with bushes and herbage of various descriptions, as alders, hazels, willows, &c., here and there intersected by rills of water, and overlooked by Fairlight glen and the Lovers seat, distant from Hastings about three miles by the road, but nearer by the beach. It was a glorious hot day when I reached the place (Saturday, June 2), uncertain whether I had judged correctly that the insect would appear in the spring, as well as autumn: after all it was an experiment, and it succeeded. The first day I captured forty-one specimens, but (alas! and dismal to relate!) unfortunately nearly all of them became quickly spoilt, through rubbing themselves in the boxes or bottles, which formed the only means of carrying them home, with which I was then provided. This insect, when newly-born, is clothed with a fine yellow-ochreous matter or powder, which the slightest touch or humidity instantly removes. The consequence is evident: unless you can secure it as soon as it makes its first appearance, its beauty is gone. I tried various methods: boxes and bottles I found entirely fatal the very day; quills only large enough to admit the insect, and only long enough to contain it, without allowing room for it to move backwards and forwards are the best vehicles to adopt for transit that I can recommend, unless entomologists pursue the somewhat slow process to which I subsequently resorted, of stifling and pinning them upon the spot. Their elytra however are so hard, that a pin, unaided, will not penetrate; so I adopted a recommendation, with which I was furnished by Mr. Walton, and procured some glovemakers triangular-pointed needles, with which to drill first a hole through the elytron for the admission of the pin, otherwise the latter will infallibly bend. It is necessary to be very careful not to touch the insect with the finger, but being provided with two of the needles, fixed into handles, to hold it down firmly with one, and pierce it with the other. The only certain and effectual method of stifling them speedily is by the fumes of prussic acid: but it is proper to be careful, lest even the three or four drops required for the purpose should touch the insect. It is found upon the leaves and stems of the thistles, and also at the roots of the plants, but I never saw one upon the flower: it pierces the stem, and I presume lays its egg by the side of the hole, pushing it in with its rostrum, and this also serves to remove all the bloom from that member, and turn it black. I did not perceive any of the young grubs, but its egg is perfectly smooth, and of a delicate flesh colour, but I was unable to preserve any, as after a few days they collapsed and dried up. In its habits this is apparently a timid species: Mr. Walton in a letter to me last year remarked: "I have no doubt from its analogy to paraplectic that the moment it sees, or hears you, or on the slightest unnatural motion being given to the plant it is on, it instantaneously draws up its legs, and drops down." This I found frequently the case, but it was generally the younger examples which were so timid, for many an one would show itself so perfectly unconcerned at my approach, as to allow me to take it off its station with my finger and thumb, just as if these older and more worn examples knew that they were secure from my cupidity in their faded condition. Others again would show themselves sensible of my proximity first by desisting from feeding, next by inclining themselves backward from the plant, with their four anterior legs stretched out, the tarsi only just touching the stem, but their hinder legs and abdomen still pressed against it; till convinced of the presence of danger, all their legs would instantly be drawn closely to the body, and down they would fall. I watched the proceedings of many, and sometimes tried what amount of alarm each would sustain before throwing

its final summersault. But the newly-disclosed examples were not to be thus sported with; they would sometimes hardly permit my approach before exhibiting signs of alarm. In falling upon my net, held ready to receive them, they always come down upon their backs and immediately feign death, rolling about with every movement of the net, their legs and antennæ packed close to the body, and apparently as lifeless as a stick. The females were generally more worn than the males, for an obvious reason, and as I rejected dozens because they were not in good condition, I brought away more males than females. The former have a shorter rostrum, with the antennæ nearer the tip, than the latter.

My last excursion was to Arundel, whither I accompanied Mr. Walton for a few days, to brush and fish the marshes for the scarcer species of Bagoides. With much exertion we procured fine specimens of *B. binodulus*, but none other of the genus. It is very local, and though we brushed and fished the ditches in all directions, it occurred only in two particular spots, and very sparingly. We also secured a good series of *Pachyrhinus Comari*, and a few stray specimens of the still rarer *P. canaliculatus* of Schönherr, the former from the *Lythrum Salicaria*, the latter by indiscriminate brushing.—*J. F. Dawson ; Tunbridge Wells, June 26, 1849.*

Ravages of the Grub of the Cockchafer.—A patch on our lawn has suffered this year from the depredations of the larvæ of the Cockchafer (*Melolontha vulgaris*). The turf for many yards became in a few weeks as dry, brittle, and withered as hay; but as the sun was very hot during the early part of the month (July), it was generally supposed that the scorched appearances might be readily accounted for, and we concluded that a few hours of rain would soon revive the vegetation. In August the showers came abundantly, but the turf remained as brown and withered as before. A bantam cock, who has the range of the lawn, seemed to give a preference to this parched spot, there he was seen one morning feasting on a large white grub, which he drew out from the roots of the grass. The mystery was at once explained—the cause of the sudden withering of the grass was traceable to this most destructive grub. Burrowing during the three summers of its apterous existence between the turf and the soil, it devours the roots of grass, and any other plant that may come in its way—so that the turf may be easily rolled off, as if cut by a turfing spade, while the soil underneath for an inch or more is turned into soft mould like the bed of a garden.—*Peter Inehbald ; Storthes Hall, August 20, 1849.*

Note on the Hop Fly.—The hops in Kent were very much infested by *Aphis Humili* last month, nearly all the leaves being thickly covered with it in the wingless state. As the *Aphis* does not spread from leaf to leaf, the injury sustained by each leaf arises from the multiplying of one or more of the winged *Aphides* that alight there, and it is obvious what great swarms must migrate to the hops from the neighbouring sloes. These numbers might be materially diminished by removing the black thorns from the hop-districts, or lessened in some degree by clipping the bushes during the winter or before the May migration, and thus destroying the eggs, or the young ones on the twigs.—*F. Walker ; July, 1849.*

Proceedings of the Entomological Society.

August 6.—J. F. STEPHENS, Esq., F.L.S., Vice-President, in the chair.

The following donations were announced: A quantity of interesting insects of India, collected and presented by Captain Hutton. A specimen of *Sirex gigas*, found boring in wood; presented by Mr. Lamb, Hurstbourne Park, Whitchurch, Hants. Six specimens of *Lixus angustatus*, from Hastings, and *Harpalus tardus*? from near Northampton; presented by the Rev. Hamlet Clark. A Memoir on the Circulation in the Larvæ of Insects, by M. Verloren, Docteur-es-Sciences, Utrecht; presented by the author. 'Transactions of the Tyneside Naturalists' Field-Club,' vol. i. part 3; presented by the Club. 'Nya Svenska Homoptera beskripta,' af Carl H. Boheman; presented by the author. 'Entomologische Zeitung,' February to June; presented by the Entomological Society of Stettin. 'The Zoologist,' January to June; presented by Edward Newman, Esq. Nine portraits of living naturalists; presented by G. Ransome, Esq., Ipswich. 'Journal of the Royal Agricultural Society,' vol. x. part 1; presented by that Society. The thanks of the Society were returned for these presents to the respective donors.

F. Barlow, Esq., of Cambridge, was elected a subscriber.

Mr. Bond exhibited *Chilo gigantellus*, *W. V.* (*punctigerellus*, *Steph.*), *Chilo mucronellus*, *Nascia ciliaris* (which was not exhibited at the last meeting, as reported at page 2531, but only the capture mentioned), *Zeuzera Arundinis*, male, *Harpalyce sagittata*, and an unknown *Eupithecia*, all taken in the fens of Huntingdonshire and Cambridgeshire.

Mr. Shepherd exhibited some rare Lepidoptera from Yaxley, including *Zeuzera Arundinis*, female, *Recurvaria falciformis* of Haworth, *Tinea Monachella*, and several new or rare species of Micro-Lepidoptera; also *Lithosia pygmaola*, taken at Deal.

Mr. Samuel Stevens exhibited several interesting Tortrices and Tineæ, taken near London, or bred from larvæ; the latter mostly found on sallows at Wimbledon Common.

Mr. Smith exhibited a collection of Hymenoptera, taken near London, including *Allantus dispar*, *Melecta Atropos*, all the four British species of *Saropodæ*, and *Miscophus bicolor*, male; also five specimens of *Osmia pilicornis*—the new species described by Mr. Smith—from Birch Wood.

Mr. Westwood exhibited the larvæ of a *Proctotrupes*, found parasitic in the larva of a *Harpalus*.

Mr. Douglas exhibited a collection of Lepidoptera he had taken near Weymouth, in July, including *Pamphila Actæon* from the Burning Cliff, *Margaritia longipedalis*, *Gelechia obsoletella*, *F-v-R.*, and *Homæosoma nimbella*? near Sandsfoot Castle; also *Margaritia asinalis*, *M. flavalis*, *M. ochrealis*, *Emmelesia rusticata*, *Ptychopoda degeneraria* (two), *Pempelia carnella*, *Gelechia cinerella*, and other rarities from the Isle of Portland.

Mr. Westwood exhibited some interesting insects received from M. Reiche, including several rarities from New Holland, and three new *Paussidæ* from Africa.

Mr. S. Saunders exhibited insects from Greece and Albania, including a new genus of Strepsiptera parasitic upon a species of *Hylæus*, being the first instance known of this genus of bees being so affected. Mr. Saunders stated that he kept a specimen of *Parmena fasciata* alive for two months without food.

Mr. S. Stevens exhibited *Hectera Esmeralda*, which he had received from Mr. Wallace, now at Para.

A paper on two new exotic Hymenoptera, with figures of the insects, by Mr. Smith, was read.

Notes by Captain Hutton, on some of the insects sent by him to the Society, were read.

Mr. Westwood mentioned that the Rev. F. W. Hope had presented his library and collections to the University of Oxford, in aid of the movement now making by the University to encourage the study of the natural sciences.—*J. W. D.*

In the report of the Entomological Society's proceedings (Zool. 2530), it is stated that I exhibited a specimen of *Deilephila Galii*. The insect has, however, been since pronounced by Mr. Bond and Mr. Shepherd not to be *D. Galii*, but a strong variety of *Euphorbiæ*, which is also my own opinion. The variety consists in its not having the strong costal markings of *Euphorbiæ*, but having merely a shade along the costa, not much darker than the body-colour of the wing, and gradually softening off into it.—*W. A. Michael*; 9, *Red Lion Square*, August 9, 1849.

Preparing Skeletons.—In reply to Mr. Duff's inquiry (Zool. 2474) respecting the best mode of preparing skeletons, it may perhaps be useful to mention the common house cockroach (*Blatta orientalis*, popularly known as the black beetle) as a convenient dissector of small animals. This insect is abundant enough in many kitchens all over England, and will readily lend its assistance in clearing the bones of any small bird, &c., placed in its way. I have the skeleton of a sparrow which was entirely cleaned by them in two or three nights. The bird was plucked, and placed in a shallow saucer on the floor of the kitchen, and the first night the inside was consumed and the ribs laid bare. When the flesh becomes dry and unpalatable, soaking it in water will induce them to feed again. A number might easily be kept in a box to work at it during the day. I have kept one alive for many weeks on bread crumbs. It is somewhat singular that they refused to touch a swift, while they regaled freely on a martin placed beside it. I am told that cats will generally refuse a swift. I have also had the heads of small birds cleaned by placing them in a tumbler of water, with a Crustacean resembling a small shrimp, common under stones in running streams.—*George Guyon*; *Richmond, Surrey*, August 13, 1849.

Canine Instinct.—At a recent alarming occurrence in Charles Street, Drury Lane, one of the sufferers, a woman named Willy, contrived to get on the top of the chapel, and was making her way across the adjoining roof, when she fell through a skylight into the factory of Mr. Hallmarke, globe-maker, where was kept a furious dog of the bull-terrier variety. Guided by her groans, several men went to her rescue, but, fearing the dog, they hesitated: at length fourteen in a body rushed in, when, to their astonishment, they found the usually savage animal licking the woman, as if to console her, and, instead of rushing upon them, evinced the most lively joy that they had come to succour her.—*'Globe.'*

A Canine Patron of Railway Travelling.—A terrier dog, belonging to Mr. Hodgkinson, spirit merchant, of Matlock Bath, having been accustomed to travel with his

owner by rail from the latter-named place to Matlock-bridge station, took it into his head to start railway traveller on his own account. Now, master 'Spot' had a little acquaintance of his own species near the bridge, to whom he was accustomed to pay frequent visits, and finding walking, or rather running, somewhat fatiguing, he adopted rail travelling by preference, and has gone by himself, sometimes once a day, from one station to the other, invariably coming back by the return train, and never once making a mistake by taking the express train, which does not stop at Matlock-bridge station.—*'Derby Mercury.'*

Extraordinary Anecdote of a Fox.—A most singular occurrence has just taken place at Owthorne, near Patrington, in Holderness. On the 10th ult., a fine male fox made his appearance among a flock of lambs, belonging to a widow at that place, and became so much attached to one of the lambs that he could not be driven away. The most extraordinary part of the whole affair is, however, the fact that the lamb also declined to be parted from its strange companion, and now the pair are seen daily, seldom far from each other.—*'Hull Packet.'*

The Hedgehog.—The other day a friend of mine caught a hedgehog, probably about a month old. It was placed on a large grass-plot, in the evening; and being wishful to know what really was the food of this animal, I kept close to it, as it walked about fearlessly round my feet. It ate grubs and toadstools, and seemed to relish them very much. I captured a young sparrow, nearly fledged, but not able to fly: I placed this before the hedgehog: he turned up his little snout, and, seeing the sparrow running and fluttering, he immediately gave chase and caught him, and began eating it, beginning at the head first, swallowing feathers and all. You hear people continually crying out against the poor hedgehog for sucking the cows' teats in the fields, and thereby robbing the owners of a quantity of milk. The hedgehog I know is often seen particularly early in the morning close to the cow's udder: why is this? Simply because he has come to feed upon the insects which have collected there to suck up the moisture which exudes from the udder and teats. If any of the readers of the '*Zoologist*' could give me positive proof of their having seen the hedgehog sucking the teats of a cow, I should be extremely astonished and obliged.—*J. M. Jones; Eccleston, St. Helen's, Lancashire, August, 1849.*

[See '*Letters of Rusticus*' on this subject, p. 109.—*E. Newman.*]

Food of the Water Vole (*Arvicola amphibius*).—With reference to the question asked by Mr. Peacock (*Zool.* 2474), I believe, from some years' observation, that the water vole is exclusively herbivorous, and never varies its diet by carnivorous additions, in the manner in which the Norway rat (which frequently inhabits the same localities) is in the practice of doing when occasion offers.—*J. H. Gurney; Easton, near Norwich, July 23, 1849.*

Gigantic Skeleton of the Extinct Irish Deer (*Cervus megaceros*).—The largest, and decidedly the most remarkable, skeleton remains of the great horned deer of ancient Ireland ever discovered, have recently been exhumed at Killowen, in the county of Wexford, the property of Henry P. Woodroffe, Esq. This splendid specimen of a long-extinct animal is perfect in the minutest particular, and has been dug out and restored to form without receiving the smallest injury. It was discovered four feet below the surface of the earth, between vegetable mould and plastic clay. The roots of the black willow and German rush had entwined themselves round the bones, and some seeds, ascertained to be wild cabbage seeds, were found in the same bed with the skeleton. Within an area of fifty square yards some smaller skeleton re-

mains of the same species were discovered, but none of them approaching the vast dimensions of this former antlered monarch of the woods. The following brief measurement summary will afford some idea of the size of this magnificent specimen. The skeleton stands $12\frac{1}{2}$ feet from the hoof to the tips of the horns; the breadth between the tips or points of the antlers being 11 feet, or 13 feet 6 inches measuring by the curve. From the hind foot to the pelvis measures 7 feet, and the palm of the antlers is 2 feet 7 inches long by 1 foot 5 inches broad; some of the spikes of the antlers are $2\frac{1}{2}$ feet long, and the face is 1 foot $10\frac{1}{2}$ inches in length: three of the cutting teeth of this animal have also been found, which did not accompany any specimen hitherto discovered. The bed in which the skeleton was found had been experimented on. It has a depth of more than twenty feet, and is different in appearance from any mould in that country. When exposed to the air, it exfoliated into plates as thin as the leaves of a book, showing a beautiful stratified structure.

The Birds of Melbourne. By J. J. BRIGGS, Esq.

(Continued from page 2493).

Starling (*Sturnus vulgaris*). See Zool. 724. Flocks of starlings and flocks of rooks, jackdaws and lapwings sometimes associate. The object which the former have in view, appears to me to be, that the rooks being far-sighted birds, and having also a keener sense of hearing, are excellent sentinels, and on the least appearance of danger are enabled to raise the alarm, and thus the starlings feed in greater security. Enter a field where both parties are feeding and it will generally be found, that the starlings are completely surrounded by the rooks as a number of skirmishers, who, on the least noise, rise on the wing, and the former, as regularly as possible, rise also and follow in their wake. In like manner they attend on lapwings, which are even more fearful birds than rooks, and on the slightest occasion, rise from the pasture and commence their wailing cries and motions of distress. It is very amusing to see how naturally starlings follow these birds, which they will do for miles, flying where they fly, settling down where they settle, and feeding where they feed. That they have some great end to answer by these actions is evident; and some naturalists have supposed that they more easily procure food, as the rooks, by reason of their peculiarly formed mandibles, are good pioneers in that respect, but then I am not aware that lapwings are similarly gifted, and with us they associate with one bird almost as much as the other. Among my memoranda I find the following note: "Feb. 20, Starlings have already begun to build in our neighbour's cottage. They have fixed on a hole beneath the rafter, and will maintain

possession of the spot. Last year the cock was shot; the hen found another mate. Next time the hen was shot; the cock paired again. Afterwards both were shot; another pair came and built. The hole was then plugged up with straw; they pulled it out piecemeal: it was next plastered over with mortar; they made a hole through it. They are now tolerated, because their building cannot be prevented." Starlings congregate in August. Before the enclosure, there were large patches of reeds under Donnington Cliff, which were rented at a certain annual sum, and the tenant sold them to builders to use in making plaster-floors and ceilings of rooms. Towards autumn starlings resorted to them in such numbers to roost, that unless scared away they settled upon the reeds, broke them down, and rendered them completely useless. It required a person to keep watch every evening for some time, and fire at them repeatedly with a gun as they were settling down; but as the spot was a favourite one, they showed considerable reluctance in quitting it. Higher up the Trent were several smaller reed-beds, and on these they were permitted to roost; and in a short time, they were trodden down so close to the mud, that they appeared as though prostrated by winds and floods. On Oct. 2, 1844, I noticed the most amazing flock of birds that it was ever my lot to witness; they were starlings. At a distance they resembled some gigantic mass of cloud, slowly traversing the heavens, and occasionally changing its form and breaking into smaller masses. It was evening, and the birds had probably collected together to roost for the night in a large wood, over the top of which they were enjoying the few moments before retiring to rest. The ease and elegance of their flight as they wheeled to and fro—the firm and compact manner in which they kept together when moving in mass—the peculiar facility which enabled them to break the main army into numberless smaller ones, and then unite again almost instantaneously, was perfectly astonishing, and equal to anything I ever witnessed in the flight of the feathered tribes.

Rose-coloured Pastor (*Pastor roseus*). Mr. Plant, of Leicester, writes "that *Pastor roseus* was shot by his grandfather John Plant, close upon Western Cliff, upwards of forty years since, and it was preserved in the collection of the Rev. W. Dawson, then curate of Weston." A beautiful male of this species was observed amongst some starlings in October, 1842. It was feeding close to a flock of sheep, which saved its life, as it could not have been killed without injuring them. It was first seen in the Trent meadows.

Raven (*Corvus corax*). Very rare.

Carrion Crow (*Corvus corone*). After floods have occurred on the Trent, a pair or two may generally be seen feasting upon the remains of half-decomposed dead animals which the current brings down, and also upon the refuse which it washes from towns.

Hooded Crow (*Corvus cornix*). A rare and irregular visitant, but occasionally seen on the wing.

Rook (*Corvus frugilegus*). Much has been said and more written upon the merits and demerits of the rook; but it is evident, since more attention has been paid to his habits, that a better feeling is now springing up in his favour. Even many agriculturists now acknowledge that "he does as much good as harm," and a few go a step further and say "he does more good than harm." The worst points which I have discovered here in the rook's character, are these:—in April and May he lives much about corn-fields and arable lands, and is accused of stubbing up the springing blades of barley, oats, &c. to get at the grain, which, not composing part of his general food, becomes more palatable by having been swollen in the ground. If pressed for food he will, no doubt, take hard corn. Towards June and July he frequents cabbage and potato-fields, pulling up the potato plants, and pillaging the young soft potatoes just forming at the roots. In the autumn, too, he visits walnut-trees, and will commit serious damage to the fruit in a short time, if not prevented. They come in flocks, settle on the tops of the trees, and twisting off the walnuts, carry them away to some neighbouring field, thrust open the shells with their bills, and quickly reach the kernel. He sometimes too repairs in winter to our turnip-fields and digs holes in the bulbs, but not to any serious extent. On the contrary, however, the rook has many excellent habits, and the amount of enemies to our growing crops, which he consumes, is really enormous. If we follow him to arable lands, where the ploughman is turning up fresh moist mould, we shall find him displaying a familiarity almost incredible in a bird of his usually cautious disposition. He follows the teams up and down every furrow, keeping close to the plough-tail, and exhibiting the greatest anxiety to be nearest the ploughman, to have the first chance with the newly turned up worm or chrysalis. On early summer mornings too, tracing him to the meadow-lands, we find him equally well employed, breakfasting on the grubs and earthworms which the dews and moisture have induced to come forth. I could fill many pages of this work with instances of the utility of the rook, but the bird requires watching, in order that a farmer may take advantage of his habits. If, after sowing fields of corn, the bird-boy

cannot keep off the rooks, as is sometimes the case, which settle down upon it in spite of all his shouts and manœuvres to affright them, depend upon it, the birds come for something more than the corn. If, again, the corn comes up weak and patchy, and the birds manifest a disposition to settle on those parts, it is a sure indication that insects are lurking at the roots. In the spring of 1846 we sowed a field with barley, and when it was just appearing it was quite pestered with rooks, which seemed determined to stub it up in spite of every effort to keep them off. I soon discovered the cause: the field literally swarmed with short, thick, brown-looking grubs, which were feeding upon the blade in all stages of its growth, but principally before it appeared above ground. When the untouched blades appeared, the field made a frightful figure, and we determined to plough it up, and consequently let the rooks have their full range over it; and pretty pickings they had, for they ran up the seams for twenty or thirty yards together, stubbing away at the grubs, and leaving every few inches a blade or two of corn. They served about seven acres in this way; the field was ten acres. The whole crop, however, was saved, for the stubbed part had so filled up, that the difference could not be distinguished at mowing time, and we had a fine crop after all. Not knowing the rook's object in visiting this field, we sent a man to kill one, who speedily shot one and lamed another. The wounded bird vomited out of his mouth a large lump of these grubs, which it was no doubt carrying off to its young. Some years ago a field in this parish was visited for many weeks, at intervals, by a number of rooks and starlings, the former more particularly. Upon examination, I found they preferred certain parts of it, which were large brown patches, and appeared to have been burnt or scathed by lightning. They settled on these by groups, and pulled up the grass, leaving it in tufts until the surface was quite disfigured. I dug out portions with a stick, and underneath discovered a large white grub, which was evidently the object of the rooks' search; but they had nearly exterminated them, and soon quitted the field. The grass did not recover its green hue again during that season, although it was but the middle of June. I know an instance in which a farmer considered that the rooks saved him a field of barley, ten acres in extent, by destroying the insects. On the whole, I should say, with Mr. Hepburn, "that the rook must be numbered amongst the farmers' best friends, and in proportion as a knowledge of insect-foes increases, so much the more will he rise in our estimation." Looking upon the habits of the rook, with the eyes both of a naturalist and farmer, I

would say, "Let us keep the rooks from our corn during seed-time (except under peculiar circumstances), when the corn is ripening, and also from our cabbage and potato-fields; but by no means cause the destruction of birds, which are of such essential service to the agriculture of a district, and whose loss, if effected, could with difficulty be replaced." Independently, too, of the good services they render us, there is something peculiarly pleasing in the regularity with which they come every morning to feed in our meadows, and wing their way again to their rookeries at night,—in their pleasant cawings and joyous manœuvres, and the busy and bustling aspect presented by their nesting-trees in spring; and I never hear of their being killed wantonly without regret.

Jackdaw (*Corvus nonedula*). Very abundant in the parks of Calke and Donnington, where they build their nests in the venerable oaks, in the holes and crevices of the boles, and not in the branches. Few birds seem to enjoy the bland sunny weather, sometimes occurring in the middle of winter, more than these. After sitting awhile on the bare boughs of the old oaks, preening and solacing themselves, opening their wings towards the sun, and occasionally playing and toying with each other; the whole body, perhaps, rises suddenly on the wing (as if some motive influenced the whole body) to the height of thirty or forty feet above the trees, and keep up a continuous cawing in a sharp, chiding manner, but not displeasing to listen to; and when they have amused themselves for several minutes, settle down again upon the trees, and at short intervals repeat the feat; perhaps a dozen times in the course of an hour.

Magpie (*Corvus pica*). Magpies have a curious habit of alighting on the backs of sheep, when depastured in our fields, to pick out the lice with which the fleece abounds, more especially on sunny days, when, owing the unusual warmth, they creep towards the surface of the fleece. They also visit the backs of cows in order to procure a large maggot-like grub, which is sometimes found imbedded in their hides,* and which appears a favourite morsel. In both instances, good service is rendered to these animals, by ridding them of these disagreeable companions. The magpie is looked upon by many people in these parts as a bird of ill-omen; they suppose that when he comes in the neighbourhood of a house where sickness prevails, a death is sure to occur to an inmate. Now, it has been repeatedly noticed by others, as well as myself, that when disease is prevalent in a house, this pie is sure to come chattering about; but I think the reason is

* The larva of *Cæstrus Bovis*.—*E. N.*

that he is attracted by the peculiar odour which is almost inseparable from a sick room. His sense of smelling is extremely acute, for if there is a putrid animal, bird, or bit of flesh, or even human excrement in the neighbourhood, he is sure to find it out. One winter I noticed several birds almost daily about a certain house where sickness was rife, and yet on ordinary occasions a bird was rarely, if ever, seen there. A pair of magpies built a nest on the top, and when the young were nearly fledged, it was attacked by a carrion crow, who, in a most daring manner, seized one of the brood, and was voyaging away with him. The parent birds, however, attacked him with great vigour, made him release his captive, and drove him away from the neighbourhood. The poor magpie fell to the lot of a labourer, who gave it to his children to rear and make a pet of.

Jay (*Corvus glandarius*). Found in the large woods; rarely seen in the open country, except when cherries are ripe. I remember once going to shoot ring-doves in a copse, and seeing something on a branch overhead, I fired, and down fell a lump (apparently of old rags), but which proved to be jays, which, when it touched the ground, separated into different parts, each bird flying away in a different direction with a most vociferous chattering. The weather was very severe, and the birds had evidently huddled together in that curious manner for warmth.

Green Woodpecker (*Picus viridis*). Sometimes called the "yaffle," from its notes. Here, a dog is said to "yaffle" when it keeps up a constant low bark. Also called the "whittle," from its habit of chipping bits of wood from trees. A boy cutting slices off a stick, is said to be "whittling" it.

Great Spotted Woodpecker (*Picus major*). Saw one on December 26, 1841. It was in the open country, and I was attracted to it by its loud and remarkable noise. I found it extremely wary of approach, taking wing before I could get within gunshot: it flew from one tree to another, alighting on the branches, and not on the bole.

Lesser Spotted Woodpecker (*Picus minor*). December 11, 1844, one killed near Newton in this parish, but was considered a great stranger in these parts. It was shot from the top of a very tall elm-tree, by a person who was killing fieldfares: its plumage was beautiful, the white parts being well defined. The tongue of this bird is well worth examination, being finer than a needle at the extremity, and slightly serrated, which enables the bird in a masterly manner to pick out insects from the bark of trees.

Wryneck (*Yunx torquilla*). Arriving with the cuckoo, and departing a little later. Called the "cuckoo's mate," or "maid."

Creepers (*Certhia familiaris*). The creeper is one of those birds which suffer the least in hard winters, and is abroad in the hardest frost and deepest snows. They appear to affect him but little, for he procures his food on the boles of trees; and even if the grass, branches of trees and cottages are entirely mantled with snow, still the boles are uncovered, and thus he has a bountiful table at all seasons, and when many other birds perish. If busied amongst the trees in an orchard, he rarely ascends higher than the boughs, and has adroitness enough to distinguish those which he has once examined, and rarely, if ever, visits them a second time. The tail of this bird is said "to act as a support in climbing a steep surface," and yet I have seen it run along the underside of a lateral branch of a tree with its back downwards, a position in which it would be rather an incumbrance. I have seen an individual also throw itself into an attitude which I should have thought it impossible to accomplish, viz., with its tail towards the branches of a tree, and its head towards the roots. The young leave the nest about the 14th of June. I once found a nest on the 7th of July, fixed immediately behind a piece of projecting bark on a willow-tree; it was composed of the soft decayed particles of the wood of the tree, lined with a few feathers from the breast of the parent bird, and was a loosely constructed fabric. Several nests of former years filled the crevice, plainly indicating that the same pair had occupied the niche for a very long period. The female showed considerable anxiety when the nest was approached, endeavouring by many curious stratagems to entice us from the spot: she brought soft green grubs and caterpillars to feed the young with. The parents keep with the young for some time after leaving the nest, occasionally feeding them with insects.

J. J. BRIGGS.

Melbourne.

(To be continued).

Oology and Ornithology.—Under this head (Zool. 2543), Mr. C. R. Bree, with his usual and well-known knowledge of these and other subjects has made some judicious remarks, to which I beg to add my mite. Would that this delightful study had thousands of admirers like that gentlemen! And then, and not till then, would sparrow societies with other nuisances of a similar nature, flee like a pestilence from the face

of civilized England. I heartily agree in denouncing with Mr. Bree that barbarous system now so prevalent, of destroying every rare bird immediately on its arrival amongst us. I do not object to collecting birds or their eggs, or any other object of natural history for the sake of forming public or private collections (but let it not be wholesale butchery), for by such it is that we gain a knowledge and a love for the examination and admiration of the wonderful works of the Almighty. Mr. Bree alludes to his encouragement of birds around his dwelling. Allow me to add also that I, since my residence at Milton Abbey, do encourage all manner of birds around my cottage, and in our plantations and woods, not suffering the keepers to molest them, whatever their opinions may be as to their destructive, or useful properties. For your correspondents' information, I will enumerate those which build and rear their young within forty yards of my dwelling: thrush, blackbird, common wren, golden-crested wren, and robin which daily with its young visits my table; the old bird hops in first, and having glanced around her to see that all is safe, gives one or two trust-notes, when in fly the four young ones, and having partaken of what crumbs have been thrown them and been satisfied, decamp: nor is this all, the old bird during the rearing of its young, came four times daily for food for them, and has carried off pieces of crumb half as large as itself. Also the starling, rook, jackdaw, hedge sparrow, house sparrow, who like the robin visits our table. Nut-hatch, common creeper, greenfinch, goldfinch, chaffinch, ring-dove, blue tit, long-tailed tit, jay, gray wagtail, raven, barn owl, &c. Not one of these birds is molested, and it is no uncommon thing to sit and look out of the window on the lawn in front of the cottage in which I am now writing, and see rooks, jackdaws, starlings, robins, house sparrows, wagtails, blackbirds, and thrushes, all feeding together, within twenty yards of my door. So tame are the jackdaws, that they will often to our amusement, pilfer meat bones from our Newfoundland dog, who seems to take no notice of them; and at this moment while I am writing, three of the common creepers are diligently searching for insects on the trunk of a beech-tree four yards from my door. The birds of the above number which build and rear their young at the greatest distance from me, are the raven, ring-dove and jay. Within this last twelve months, the sparrowhawk has made bold to take up his quarters within three minutes walk of the cottage on the left of a large beech-tree; and so familiar have the old birds become, that they will perch on the iron railings, till one is within a few yards of them. Some of our old rooks before their young leave them, regularly every year pay a visit to the housekeeper's windows, where they are regularly fed; they alight first on the branches of a large Catalpa-tree in front, and commence their serenade: the window being then thrown open, the birds with their young alight on the ground, and walk towards the windows from which they receive their reward; this has occurred to the admiration of many of my friends for the last three years: nor is this all in the character of this much-persecuted bird, for those above described, as soon as hard weather sets in, repay the housekeeper with their company, and are, I am happy to say, received with the same good feeling as on their first visit.—*J. M'Intosh; Milton Abbey, August 4, 1849.*

The Eagle Owl (Strix Bubo) breeding in confinement.—On the 1st May I communicated to the 'Zoologist' the curious fact of a pair of eagle owls (Zool. 2452) in the possession of Mr. Edward Fountaine of this parish, having produced in confinement three eggs, which were then in process of incubation. I have now the additional pleasure of stating, that the eggs have been hatched, and the young birds safely reared.

The following particulars, which have been kindly supplied to me by Mr. Fountaine, will, I have no doubt, be acceptable to the readers of the 'Zoologist.' The first egg was observed on the 13th April, and the two others about a week afterwards. Two young ones were found to be hatched on the 19th, and the other on the 22nd May. They were entirely covered with white down when first hatched. When they were about three weeks old, they began to exchange the first or white down for the second down, which was of a brownish gray colour. And at the age of about five weeks, the feathers began to appear, and the young owls are now, able to fly up to their perches, are nearly as large as their parents, and in fact much in the same stage as the specimens usually imported from Norway at this time of year by the London bird-dealers.—*J. H. Gurney ; Easton, July 23, 1849.*

Error in describing the American Shrike.—In the notice which I sent you regarding the American Shrike (Zool. 2495), I find there is a mistake, which probably originated in the transcription for the press. Instead of "in the *American* male there are two small bars of white on the wing, whereas in the *European* there is but one," the words should be, "in the *European* male there are two small bars of white on the wing, whereas in the *American* there is but one."—*James Smith ; Manse of Monquhitter, July 23, 1849.*

Curious Fact in the Nesting of the Long-tailed Tit (*Parus caudatus*).—Mr. Yarrell, in his account of this bird, states the number of eggs to be ten or twelve, and occasionally a larger number: I suspect where the greater number is found, there will be more than one pair of birds attached to the same nest. I have known several instances when a considerable number of birds have had one nest in common. In one instance there were nine, and I found the nest whilst the birds were lining it with feathers, and if I remember rightly, most of them were engaged in conveying the feathers. During the time of incubation, two usually sat on the eggs, the number of which I never discovered, for fear of disturbing the nest, which was built in a very singular position, being placed in the fork of a large oak-tree. I assisted in capturing five of the parent birds, belonging to another nest, whilst feeding their young; and two or more were left behind. The nest containing the young birds was conveyed to a distance of several miles, and placed in a garden, and unfortunately on the ground under a riddle for the first night, and on the following morning four out of the five old birds were dead, either from the cold, or from the injuries they had received in being captured. The nest, with the young, were then placed in a low bush in the garden, and the surviving bird set at liberty, when it immediately began to feed the young, and brought them all up: fortunately there was a plentiful supply of caterpillars just at hand, or I think the labour would have been too much for the single bird, as its short flights to and from the nest were almost incessant.—*H. Horsfall ; Calverley House, near Bradford, York, August 3, 1849.*

Note on the occurrence of the Ring Ousel (*Turdus torquatus*) *near Esher.*—A specimen of the above-named bird was shot near this place about the middle of the present month.—*F. A. Chennell ; Esher, Surrey, August 24, 1849.*

Enquiry respecting the Bullfinch (*Loxia pyrrhula*).—Can the 'Zoologist' recommend any method of overcoming bullfinches (or hoops)? which, last spring have committed more ravages than usual, in a secluded parish in the north of Devon, where they can harbour in surrounding plantations; guns are employed to little purpose. Any advice on this subject will be thankfully received by the clergyman of

the parish, for the sake of his own crops and those of his poorer neighbours in future.—*Torquay, August 22, 1849.*

[In a garden a stuffed cat, placed in a conspicuous situation, has been found a capital scare-bullfinch: I may recommend, in addition, that in preparing a cat for this office there is no occasion to exercise ingenuity in making the cat look horrible and unlike a cat, for I have found that birds soon get familiar with any effigy, however frightful, if it does not somewhat represent the reality which they have cause to dread.—*Edward Newman*].

Black Variety of the Bullfinch (*Loxia pyrrhula*).—From the neighbourhood of New York, and distant about twelve miles, I received a black bullfinch, on the 7th of April last: it is wholly black, with the exception of two or three reddish brown feathers on the belly, and one of the outer tail-feathers, which is partially white. For two years it had been a caged bird, and after its last moult, changed as described above. What I think most worthy of notice is, that its food consisted entirely of *canary seed*, and not of hempseed, as mentioned in the instances of black bullfinches, recorded by White of Selborne, and others: it would appear, therefore, that food alone is not the cause of the change, but probably, some constitutional derangement in the bird. As is usually the case with caged bullfinches, it died very suddenly, and very fortunately, in good feather for preservation.—*James C. Garth; Knaresborough, August 15, 1849.*

Albino Variety of the Swallow (*Hirundo rustica*).—A perfectly white swallow was shot at Spofforth, on the 20th of last July, which came into my possession on the following day; the irides were a pale pink colour.—*Id.*

Occurrence of the Night Heron (*Ardea Nycticorax*), *White Egret* (*Ardea alba*), and *Stork* (*Ciconia alba*) near Wisbeach.—A fine adult male specimen of the night heron was captured close to the town of Wisbeach on the 19th ult. It was taken by a man named Neale, at work in a field by the side of the River Nene. Neale's attention was attracted to a large tree by the clamorous noise of some crows, who were buffeting, at what he conceived to be, a "very curious bird;" and having procured a gun, he shot and winged the rarity. He took it home alive, and after keeping it for five days, subsequently sold it to Mr. Matthews, a baker, who for nearly three weeks, fed it by cramming pieces of eel down its throat. I have seen the bird several times, and on my last visit it appeared to have become more reconciled to its confinement, and now takes its food regularly, which consists of three average-sized eels daily. The colour of the irides differs much from the description given in works of Natural History, inasmuch as in this specimen they are of a *blood-red*, and not of a yellow colour. About the same date, a fine male specimen of the white egret was shot in Thorney-fen, which has since been preserved, and is now in the collection of the Rev. Dr. Strong, of Peterborough. A fortnight since a white stork was, I am informed, shot at Stoke Ferry, near Downham. This has also been preserved.—*J. W. Foster; Curator of the Museum, Wisbeach, July 17, 1849.*

Correction of an Error respecting the Pectoral Sandpiper.—Sometime since I communicated to the Zoologist (Zool. 2392) that I had purchased a specimen of the pectoral sandpiper (*Tringa pectoralis*), which was said to have been killed at Yarmouth, in September last: I now much regret to say that, I fear that I was imposed upon with respect to this specimen; and that it is, in reality, a foreign one.—*J. H. Gurney; Easton, near Norwich, August 14, 1842.*

Occurrence of the Little Stint (*Tringa minuta*) *at Rye*.—I shot a pair of these scarce birds, in full plumage, from the hills along our coast. I have observed them for some days past, but not recognizing them, I did not molest them until I was satisfied that they were new to me. I have since seen another specimen at the same place.—*J. B. Ellman; Rye, July 14, 1849.*

Occurrence of the Eared Grebe (*Podiceps auritus*) *at Wisbeach*.—Two male specimens, in full plumage, were shot near Wisbeach a short time since: they were both preserved, the one for the Lynn, and the other for the Wisbeach museum.—*J. W. Foster; Wisbeach, July 17, 1849.*

Occurrence of the Gull-billed Tern (*Sterna anglica*) *at Yarmouth*.—A fine adult male specimen of the gull-billed tern was shot at Yarmouth, on July 31st, which I beg to mention, in case it should not have already been recorded by any of the correspondents of the 'Zoologist' in that town.—*J. H. Gurney, Easton, near Norwich, August 14, 1849.*

Rare Birds in Yorkshire.—By a letter received from Mr. Graham, the talented bird-stuffer of York, I hear that a specimen of that exceedingly rare bird, Bulwer's petrel (*Thalassidroma Bulweri*), was obtained at Scarborough during the spring: and that since then, three examples of Buffon's skua (*Lestris parasiticus*) have been procured on the Yorkshire coast; and one specimen of Richard's pipit (*Anthus Richardi*).—*Edmund Thomas Higgins; Penrith, July 25, 1849.*

*Ornithological Rambles in Sussex.**

A nice little book after the manner of Rusticus, and written by an old and valued contributor to this magazine. The author is a man after one's own heart, regardless of a little fatigue or inconvenience when in the pursuit of natural history lore. The following extract exhibits the man as well as his style: the scene is in Pagham Harbour.

"Here, in the dead long summer days, when not a breath of air has been stirring, have I frequently remained for hours, stretched on the hot shingle, and gazed at the osprey as he soared aloft, or watched the little islands of mud at the turn of the tide, as each gradually rose from the receding waters, and was successively taken possession of by flocks of sandpipers and ring-dotterels, after various circumvolutions on the part of each detachment, now simultaneously presenting their snowy breasts to the sunshine, now suddenly turning their dusky backs, so that the dazzled eye lost sight of them from the contrast; while the prolonged cry of the titterel, and the melancholy note of the peewit from the distant swamp, have mingled with the scream of the tern and the taunting laugh of the gull.

"Here have I watched the oyster-catcher, as he flew from point to point, and cautiously waded into the shallow water; and the patient heron, that pattern of a

* 'Ornithological Rambles in Sussex, with a Systematic Catalogue of the Birds of that County, &c. By A. E. KNOX, M.A., F.L.S., F.Z.S.' London: Van Voorst, 1849.

fisherman, as with retracted neck, and eyes fixed on vacancy, he has stood for hours without a single snap, motionless as a statue. Here, too, have I pursued the guillemot, or craftily endeavoured to cut off the retreat of the diver, by mooring my boat across the narrow passage through which alone he could return to the open sea without having recourse to his reluctant wings. Nor can I forget how often, during the Siberian winter of 1838, when 'a whole gale,' as the sailors have it, has been blowing from the north-east, I used to take up my position on the long and narrow ridge of shingle which separated this paradise from the raging waves without, and sheltered behind a hillock of sea-weed, with my long duck-gun and a trusty double, or half buried in a hole in the sand, I used to watch the legions of water-birds as they neared the shore, and dropped distrustfully among the breakers, at a distance from the desired haven, until, gaining confidence from accession of numbers, some of the bolder spirits—the pioneers of the army—would flap their wings, rise from the white waves, and make for the calm water. Here they come! Already is the pied golden-eye pre-eminent among the advancing party; now the pochard, with his copper-coloured head and neck, may be distinguished from the darker scaup-duck; already the finger is on the trigger, when, perhaps, they suddenly verge to the right and left, far beyond the reach of my longest barrel, or, it may be, come swishing overhead, and leave a companion or two struggling on the shingle or floating on the shallow waters of the harbour."—page 8.

The subjoined passage relating to the heronry at Parham is graphic and excellent, and the effect is greatly enhanced by an admirable lithographic sketch of the scene described.

"Being anxious to examine the young birds, I selected one of the spruce firs, on the summit of which was a heron's nest, and which appeared to command a view over many other lower trees immediately adjoining, which were similarly occupied. The only danger—if such it could be called—was in preserving a firm footing on the brittle branches near the nest, nor can I say that I experienced a pleasing sensation when the tall and narrow stem, already well loaded with the enormous, wide-spreading fabric at the top, began to sway to and fro from my additional weight, as I endeavoured, by walking out on one of the boughs immediately underneath, to outflank it so far as to enable me to reach the edge, and while supporting myself with one hand, partially explore its contents with the other. Having, however, succeeded in this, I soon felt the decomposing and flattened bodies of two young herons, and above them the warm plumage of a living bird, which did not appear to avoid the touch of my hand. An effort with both arms now brought my face to a level with the nest, but I had scarcely time to perceive that it contained a healthy and perfectly fledged young bird, sitting complacently on the bodies of his defunct brethren, before he darted violently at my eyes, although he had previously evinced no displeasure at the introduction of my hand, and I was only able to protect them by bobbing my head suddenly, and receiving the attack in a less vulnerable quarter. As if roused by the sudden exertion, he then scrambled out of the nest to the extremity of an adjoining bough, from whence—being unable to follow him—I endeavoured to shake him off, for a long time in vain. The obstinacy with which he maintained his hold was extraordinary, and even after losing his equilibrium, and hanging, head downwards, for a few moments, just as I fancied he was about to drop, he clutched the branch more firmly than ever, and writhing his elastic neck upwards, he seized a twig with his beak, which he held with all the tenacity of a parrot. I therefore continued to shake the bough, and after per-

severing in this operation for some minutes, he gradually relaxed his hold, and half fluttering, half tumbling through the horizontal branches of the tree beneath me, at last reached the ground in safety.

"I had now leisure to examine the nest, the lower and external portions of which were composed of sticks from the larch and fir, the materials becoming finer towards the interior, which was lined throughout with very thin birch twigs, closely matted together. It was much wider than that of the rook, and shallower in proportion, being, as nearly as I could guess, about four feet in diameter, and some of those in the neighbouring trees, when viewed from beneath, seemed even larger than this.

"The two dead birds appeared to have perished about a week before, probably owing to the unusual severity of the weather during the past month. Their decomposing bodies did not seem to have incommoded the old birds, as they might easily have removed the annoyance, if inclined to do so, by throwing them out of the shallow nest, in the interior of which I found nothing else, except the back-bones of two or three fish, which might have originally weighed half a pound each.

"My operations having for the present disturbed the elder members of the heronry, who seemed unwilling to return to the trees while I remained there, I left the place a couple of hours, and then cautiously retracing my steps, fastened my horse to a shrub at some distance, and taking off my shooting coat, from one of the capacious pockets of which the head and neck of the living heron protruded, I slung my spy-glass over my neck, and as silently as possible ascended a Scotch fir which commanded from its upper branches a good view of a large nest in a neighbouring tree. The ever-green boughs, moreover, were so well clothed with leaves that I found less difficulty than I had expected in concealing myself, but notwithstanding all my care the old birds had taken the alarm when I began to climb, and I had to wait a long time before either of them returned. I had, however, a good opportunity of examining with my glass the grotesque inhabitants of the nest: they were three in number, appeared to be not more than a week or ten days old, and were partly clothed with a hairy down, resembling hemp or flax in colour and appearance; their heavy heads, crowned with tufts of this, and raised occasionally as they opened their enormous mouths in expectation of food, and then suddenly dropped again; their great staring eyes, writhing necks, and naked bodies; altogether contributed to render their appearance irresistibly ludicrous: but their excitement seemed to have reached its utmost when one of the old birds, which flapped round the nest for some time, at last prepared to alight, gradually allowing his outstretched legs to fall from the horizontal to the perpendicular, and working his wings with increased violence and rapidity until he found a firm footing on the margin of the nest, when, opening his beak, he immediately disgorged several small eels, which were greedily devoured by the three young birds. The eels appeared to be very small; but I had ere long an opportunity of observing that even when a fish is of a tolerable size, the heron contrives to conceal it within the elastic pouch to which, in so many birds, the dilatable skin of the throat can be readily converted; for many minutes had not elapsed before I saw an old heron alight on a more distant tree, and opening his mouth, drop a fish, which appeared to be above half a pound weight, into the bottom of his nest. I had, it is true, only a passing glimpse of it as it fell, and therefore at the moment could make only a rough guess at its weight and species, but it appeared to be a bream, or large roach, and of such a shape and size as I should scarcely have supposed to have been stowed away within that graceful neck, if I had not been aware, from former observa-

tions on the habits of cormorants and divers, how great are the expansive properties of the gullet in all piscivorous birds. After dropping it on the floor of the nest he commenced, by repeated blows of his beak, to lacerate and tear the flesh from the bones, and seemed to accomplish his task in an incredibly short space of time by means of the admirable tool with which Nature had furnished him, performing at once the double duties of pickaxe and pincers; then followed the feeding of the young birds, and so economical a housekeeper and skilful carver did he prove, that when I had afterwards the curiosity to ascend to his nest, I found, as the remains of the repast, little else than the back-bone of a fish which might have weighed nearly a pound, with a few ragged bits of flesh adhering to it; even the head had been devoured."—page 22.

The subject of migration is treated with much skill, and ornithologists are deeply indebted to Mr. Knox for his capital and novel observations on this subject: it has been too much the fashion to regard certain insectivorous birds as the only migrants, but recent observations have shown that the conirostral tribes are present in certain localities in the summer, and absent in the winter, this is particularly the case with goldfinches in Herefordshire, a subject to which I particularly invited the attention of my readers as far back as May 1845 (see Zool. 983). Mr. Knox appears to have assiduously entered on the field of observation, which I then ventured to recommend, and to have established as facts certain positions which I then only advanced as hypotheses.

"The advanced guard of this emigrant host usually makes its appearance in the neighbourhood of Worthing, Shoreham and Brighton, about the latter end of August or early in September, and is generally composed of detachments of meadow pipits (*Anthus pratensis*), pied wagtails (*Motacilla Yarrelli*), tree pipits (*Anthus arboreus*), and yellow wagtails (*Motacilla flava*), the two first-named species being generally understood to be permanent residents in England during the whole year. Many of those birds certainly do remain with us during the winter, but I am disposed to think that these are the natives of more northern and western counties, which, having proceeded thus far towards the south-east, are, as it were, satisfied with this partial migration, and do not cross the Channel, unless subsequently compelled to do so by unusual severity of weather at a much later period of the year.

"But the troops of these autumnal voyagers do not consist merely of denti-rostral or exclusively insectivorous birds; the conirostral tribe furnishes many recruits, goldfinches (*Carduelis elegans*), gray linnets (*Linota cannabina*), and green grosbeaks (*Coccothraustes chloris*), pass in considerable numbers; and such multitudes of the first-named species are occasionally taken, that the market of the song-bird dealers is literally glutted with them, even their most capacious family-cages being quite filled with recently captured goldfinches, and from this circumstance, as well as from the comparatively trifling value attached to these birds at this season—when, from the immaturity of the greater proportion of the little prisoners, and the deficient state of their plumage, the sex cannot be satisfactorily ascertained—they are frequently doomed to death, and being afterwards tied up with yellow-wagtails, green grosbeaks and gray linnets, in variegated bundles, from which their own little crimson heads protrude like ripe berries, they are hawked about by the juvenile members of the bird-catching fraternity, and occasionally sold to those who can find it in their hearts to purchase such an ornithological bouquet.

"I have already said that many of our conirostral or hard-billed birds, as well as

others of the denti-rostral or insectivorous division of the *Insessores*, hitherto supposed to be constantly resident, at least in the south of England, leave this country in considerable flocks about the beginning of autumn, and return to it in diminished numbers during the ensuing spring. It would be taxing your patience too much if I were to transcribe from my journal all the notes and records committed to paper within the last few years which bear upon this particular subject; such an infliction might test even your ornithological zeal too severely, and would necessarily exceed the limits of many letters; but feeling, as I do, that the subject is one of more than common interest, I propose to select two well-known examples, which have heretofore been supposed to be constant residents in our island, the goldfinch and the pied wagtail; the one a hard-billed bird, the other soft-billed: and an account of their migrations will be sufficient to illustrate my theory, and perhaps comprehend as much as would prove interesting to you on this subject.

"Of the departure of large flocks of goldfinches in the autumn I have already spoken: a few, however, remain in different parts of the county throughout the entire year, and in winter are generally found on wild, bushy ground, among the remote valleys of the Downs, or on hedges near waste land or commons. The periodical arrival of fresh birds in the spring is well known even to the most inexperienced bird-catchers in the neighbourhood of Brighton, and anxiously expected by them for many days previously: the goldfinches which have remained all the winter are called by them 'harbour birds,' meaning that they have sojourned, or harboured—as the local expression is—here during that season: those which arrive in April are called 'flight birds.' When the latter are expected the bird-catcher watches his nets with an anxious countenance, and his disappointment is great, if, upon releasing from the meshes a newly captured prisoner, he perceives by the dull-coloured back, dirty red forehead, and general shabbiness of the plumage, that it is only what he contemptuously terms 'a harbour bird.' Far different are his feelings when he entraps one with a light-coloured back, snow-white cheeks, and bright vermilion forehead; he knows then that 'the flight' has commenced, and the hour of sunrise finds him at his post on the following morning, anxious to avail himself of the precious moments.

"It is worthy of remark that the 'harbour birds' are much more shy than the newly arrived 'flight birds,' which, with their plumage advanced to that of the breeding season—the effect of a warmer climate—are comparatively tame and easily caught; they are at once attracted by the decoy bird, and fly into the net in unsuspecting haste.

"Goldfinches again become numerous in October, when detached parties, including the young of the year, which have been spread through other portions of the island during the summer, approach the coast, and pass eastward in succession, until they find—on the shores of Kent as I imagine—a favourable spot for crossing the Channel."—page 77.

I shall conclude this notice of Mr. Knox's 'Rambles' with his spirited account of a shooting ally in the person of a little merlin. I must not, however, abandon the 'Birds of Sussex' here, but beg to announce my intention of abstracting Mr. Knox's List, arranging the species somewhat differently, and showing the relative proportion of residents and migrants: the materials for this are so ample that it would be inexcusable to miss so excellent an opportunity of adding these ornithological statistics to those already published in the pages of the 'Zoologist.' This task must be reserved

for a future number, and I now take leave of the volume, heartily recommending it to the perusal of my readers.

"Some years ago, when snipe-shooting on a range of strictly preserved bogs in the west of Ireland, the merlin was, I may say, my daily companion. I find, by reference to memoranda of that date, that I commenced operations in the beginning of November, generally taking the field about eleven o'clock in the morning, and bagging on an average from ten to twenty couple of snipes during the day, besides a few hares, woodcocks and wild ducks. I well remember the first time the merlin made his appearance with the obvious intention of sharing my sport. I had just entered one of those wet moors—surrounded by partially cultivated land—which in favourable weather are much more productive of sport than the extensive 'red bogs,' when a couple of snipe rose near the margin. Bang, bang, went both my barrels, and while one bird fell dead, the other, slightly but perceptibly wounded, ascended to a considerable height, and from the direction of its flight was evidently preparing to drop in a marsh which I had just left. While my eyes were fixed upon its movements I perceived a merlin advancing rapidly towards it, and struggling through the air, as if afraid that in spite of its exertions it would still be too late. The snipe, although wounded, yet attempted to ascend higher, but finding itself unequal to the task, yielded, as it were, to the breeze which was blowing freshly at the moment, and—contrary to its usual habit—flying *down* wind with extraordinary rapidity, seemed to trust to speed for its escape: but swift as it was, its enemy was swifter still, and when after the lapse of a few seconds the two birds had become like specks in the distant sky, I could perceive that one of these gradually gained on the other, touched it, and then both melted into one larger dot, which slowly descended to the ground.

"Ah!" cried my Celtic attendant, 'that's the snipe hawk'—using an Irish word which I now forget, but which, when interpreted, bore that signification—'and a brave little chap he is.' Then suddenly turning round, he bestowed a volley of curses—varied with a few whistles—on a wild young setter who was galloping incontinently over the yet unbeaten ground, turning a deaf ear to all Pat's imprecations, while she treated with equal disregard the significant movements of old Pluto, a veteran pointer, who, with stiff tail and protruded muzzle, was advancing cautiously towards a bed of rushes, and just beginning to settle down into a comfortable point. I need hardly tell you that at that moment the hawk was forgotten for the snipe, and it was not until the afternoon, in a distant bog, that I again recognized my little friend, the merlin, hovering about, and every now and then appearing about to leave us, but as quickly returning, and evidently hanging on in expectation of our starting some of his favourite game. As for the snipe, they lay like stones while he continued overhead; old Pluto pointed them one after another, even Fan condescended to 'back,' and I had to kick them up under the nose of the former, as they sprang reluctantly from the rushes, and presented a succession of the most satisfactory shots imaginable; which was the more gratifying as they had been unusually wild during the previous part of the day. After bagging several, at last one rose at a considerable distance—quite out of shot—and away went the merlin after it. We watched the chase for a long time, both birds appearing equally matched, but they disappeared before it came to a close, and the shades of evening soon afterwards reminded me that I had five miles to walk home before dinner.

"Well, on my return a few days afterwards, there was the merlin again on the

same bog! I could perceive him, as I topped a hill which commanded an extensive view of the country, scudding along towards us in a joyous sort of flight, as if to say 'you are welcome, I have been waiting for you a long time, come and begin at once.' And truly he was more confiding than ever, following me from one marsh to another, and evidently distinguishing and appreciating the respective performances of man and dog. It was not long before he discovered that the capture of a wounded snipe was attended with far less trouble to him than the pursuit of a sound one, and he soon became so fastidious in this respect as to allow those birds which were sprung out of shot to depart without giving chase to them, while he looked to me to put such a retainer on some of those which rose near me as should render the completion of the work an easy matter for him.

"When a snipe was killed dead he never meddled with it, but if it fluttered and fell at a distance he would frequently drop on it as it touched the ground, and begin plucking and devouring it. I made it a rule never to interfere with him on such occasions, unless I wished to keep his talents in reserve for an aërial exhibition, in which case the nimble-footed Pat would run forward and bag the snipe as quickly as possible, before the little hawk had fairly commenced his meal; although when he perceived our intention he would generally succeed in carrying it to some distance, expostulating all the time, with loud and angry shrieks, at what he evidently considered a breach of our compact.

"After my third or fourth visit to those bogs the merlin was always there to receive me, and was subsequently joined by a companion, a female, both of them continuing to attend me in all my snipe-shooting expeditions on that side of the country. Sometimes, at the very commencement of the day's sport, I might perhaps be unaccompanied by my little friends, but the first report of my gun was generally sufficient to summon one or both of them to my presence, and a wounded snipe, however slightly touched by the shot, had no chance of escape from their united efforts. First one would rise above it in a succession of circular gyrations—for he was unable to ascend in such a direct line as the snipe,—then he would make a swoop, and if he missed, his companion, who in the mean time had been working upwards in a similar manner, would next try her luck, and in this manner they would pursue the quarry, until the persecuted bird, unable to ascend higher or any longer avoid the fatal stroke, was at last clutched by one of the little falcons, while the other would hasten to 'bind to it,' and all three descend together into the bog. After a performance of this sort an hour would occasionally elapse before the return of either of the merlins—sometimes more, sometimes less—but they never seemed willing to give up the sport until at least three snipes had fallen to their own share."—page 119.

*British Reptiles.**

I am much pleased to find that a second edition of Bell's 'History of British Reptiles' has been called for: the book was always a great favourite of mine, although I have sometimes mentally charged the author with too great a love for making genera

* 'A History of British Reptiles.' By THOMAS BELL, Sec. R.S., &c. Second Edition. Van Voorst, Paternoster Row.

and species. The new edition gives up two species which I had always supposed merely imaginary, and substitutes two others of undoubted claim to that rank: thus, *Rana scotica* of Bell makes way for *Rana esculenta* of Linneus, and *Triton palmipes* of Bell gives place to *Triton palmipes* of Deby, the *Salamandra palmipes* of Daudin (not Dandin as Mr. Bell has spelled the name); and the learned author gives ample credit to the 'Zoologist' for introducing these two interesting British reptiles to the notice of English naturalists. The genus *Lissotriton*, I regret to see, is still preserved, as also the species *Triton Bibronii*, which I cannot regard as even a variety, since I consider the dorsal crest merely seasonal, and the form of the lip merely sexual. This view, however, I by no means wish to press, but throw it out for the consideration of my readers, and in the hope they will express their opinions in future numbers of this work. With regard to the genus *Lissotriton*, it is made solely to depend on the somewhat smoother skin, and on the dorsal crest or fin being continuous: Mr. Bell expressly states, that the tongue, teeth, and feet are the same as in the genus *Triton*: I think a genus thus constituted is scarcely likely to receive the approbation of zoologists. With regard to the new figure of *Triton palmipes*, I may perhaps be pardoned for mentioning that the female appears to have six toes besides a tubercle on the hind foot; this is of course an error of the engraver. Notwithstanding these few points, which I regard it a duty to point out, I may truly say that this volume is a beautiful and valuable contribution to science, and one which I have great pleasure in recommending.—*Edward Newman*.

On Leaves Adhering to the Casts of Worms.—I believe it to be a generally received opinion that the various substances found attached to the casts of worms have been drawn there *unintentionally*, but this, I think, I have now ascertained not to be the case, having repeatedly witnessed the manner in which they become so placed. I have been in the habit of visiting my beds of Verbenas, Asters, &c. late in the evening with a light, to destroy those nocturnal depredators the common slugs (*Limax agrestis*), and was, at first, several times startled by the sudden withdrawal of huge worms from among the foliage, and of course at a loss to imagine for what object they could have climbed there. For a long time I was unable to detect their proceedings, as on the slightest motion of the leaves they were gone, or even treading on the gravel near was sufficient to alarm them, and once disturbed, they are a long time in regaining sufficient confidence to resume their operations. At length, however, I observed that the *Phlox verna* appeared to be a particular favorite, and as it presented the most favorable features for observation, I selected a patch most conveniently accessible. Here I was soon rewarded for my trouble. A tapering head was cautiously protruded from the soil, and moved backwards and forwards in segments of a circle, *feeling with its mouth everything in its way*, and gradually extending its length so as to take in a fresh portion of ground every time. This was continued until it reached the plant. Here it commenced a close examination of the stem, up one side and down another, passing from leaf to leaf until it came to one bruised and decaying. This immediately arrested its attention, and was taken hold of and pulled towards the hole, but being still firmly attached to the stem, sprang back from its grasp. After this defeat the same process was repeated until the leaf was again discovered. This time it was not

merely taken hold of, but full one-half of its length was fairly sucked into the creature's mouth, although with no better success. I now placed in its way a fallen corolla of the white jasmine, which, as soon as discovered, was seized upon just as the leaf had been and dragged to the hole, but having been taken hold of by the side of the tube, could not be got into it. I then removed it to a distance and placed a *fresh pulled leaf* between it and the hole, but of this no notice was taken and the jasmine was again found. It was now seized by one of its segments, but apparently without design, and drawn partly into the hole. The following morning this, together with the now withering leaf and various pieces of stalks, &c. were at the mouth of the hole: several of its segments were mutilated from having been sucked, and one was entirely gone. Since this I have had many opportunities of observing that any portions of decaying vegetable matter within their reach are laid hold of, and if sufficiently small or pliable, entire disappear, otherwise they are left as we find them sticking in tufts on the surface of the ground. Hence to the oft-asked question "Of what use are worms?" may we not reply that they form a class of scavengers to the vegetable kingdom somewhat analogous to the Silphidæ in the animal creation.—*W. K. Bridgman* : 69, *St. Giles' Street, Norwich*.

[I have a small portion of a small garden partitioned off and covered with glass, for the purpose of protecting a few British ferns which are there planted, and the earth being somewhat moist and very sheltered, abounds with worms. During the past spring and early summer, I was greatly annoyed to find the newly expanded, and, in many instances, the half expanded fronds rotting off about an inch above the ground; on carefully examining the seat of the injury, I found evident marks of the stems having been nibbled or bitten all round at the very place where the decay was taking place: I looked in vain for slugs, woodlice, earwigs and weevils every morning and night with a candle, well knowing the destructive propensities of such animals: it was evident to me, that whatever the enemy might be, it took notice of my approach and made a timely retreat. However, one evening, after having spent at least half-an-hour in this little fern-house, I saw the apex of a newly expanded frond tremble and jerk most violently: I knew there was no draught, neither did the motion at all resemble the graceful waving which wind produces. I remained very quiet, and presently saw three or four more fronds similarly agitated. With the least possible movement, and without altering the position of my feet at all, I brought the light to bear on the stem of a trembling frond, and there I beheld a large worm, alternately seizing and letting go the stem at the very seat of the injury before described. I felt quite certain, from the obvious diminution of bulk, that the worm was actually devouring the stem of the fern, for I watched the process, time after time, and in one instance until the frond actually fell. I am not, however, so convinced that the worms were the primary cause of the injury: from a long series of careful observations, I incline to believe that they only attacked those stems in which decay had already commenced from some undiscovered cause. Having discovered that worms are not alarmed by light or the close proximity of an observer unless he move, I have often watched the operations which my correspondent describes.—*Edward Newman*].

Proceedings of the Zoological Society.

August 2.—Dr. GAMBLE in the Chair.

Lambert B. Foster, Esq., David Ivall, Esq., John Hunt, Esq., James Purday, Esq., James Tennant, Esq., Samuel C. Baker, Esq., H. Drummond Wolff, Esq., and Mrs. Rohrs, were elected Fellows of the Society.

The Report of the Council announced that the number of visitors to the Gardens during the month of July was 37,789; and that the total increase of the number of visitors since the 1st of January, as compared with the corresponding period of 1848, amounted to 18,397. The Report contained an interesting list of donations to the menagerie received since the last meeting, including a specimen of *Boa divinito*, from St. Lucia, presented by Lieut. Tyler, R.E., and a large Iguana (*Cyclura Colei*), from Jamaica, presented by Dr. Andrew Smith. It also announced the completion of a wing to the giraffe-house, which had been rendered indispensable by the increased numbers of large Mammalia recently added to the collection.—D. W. M.

Proceedings of the Entomological Society.

September 3.—G. R. WATERHOUSE, Esq., President, in the chair.

The following donations were announced: 'Entomologische Zeitung,' for July; by the Entomological Society of Stettin. 'The Zoologist,' July to September; by Edward Newman, Esq. 'Reports of the Smithsonian Institution,' to January, 1849, and vol. i. of the 'Smithsonian Contributions to Knowledge;' by the Smithsonian Institution. 'Reports of the Council and Auditors of the Zoological Society;' by that Society. Six specimens of *Peronea permutana*; by C. S. Gregson, Esq., by whom they were captured at New Brighton, Cheshire. The thanks of the Society were given to the respective donors.

Henry Ingall, Esq., was elected a subscriber.

Mr. S. Stevens exhibited some rare insects taken at Dover and Deal, including *Gelechia Neuropterella*, *Lixus bicolor* (alive) from the sand-hills, and *Choragus Shepardi* from dead wood in hedges: also *Sitaris humeralis*, found on the wall of his own garden at Hammersmith.

Mr. F. Smith exhibited some cells apparently formed of clay, made by *Geotrupes stercorarius*.

Mr. Westwood exhibited specimens of a species of *Aphis*, which he had described in the 'Gardener's Chronicle' under the name of *Pemphigus Lactucæ*. It had recently destroyed whole beds of lettuces, in various parts of England, by feeding on the roots of the plants. He also exhibited a living *Sirex Juvencus*, and noticed its bold attitude when disturbed, likewise the adaptation of its limbs for progressive motion in a cylindrical burrow: he also exhibited a piece of wood with several of the burrows formed by this species, a specimen of which just developed was seen in one of them; in another burrow was a living larva: specimens of *Sirex gigas* had been produced from the same piece of wood, which was forwarded by Mr. Lamb from Hampshire. He also exhibited specimens of *Scleroderma*, male, with drawings and dissections, from which and the observations of S. Saunders, Esq., by whom they

were captured in Albania, it was proved that the insects doubtfully described by Mr. Westwood, in the second volume of the Entomological Society's Transactions, as the males of *Scleroderma*, do not belong to that genus. He likewise showed specimens of the rare Australian *Paragia tricolor* (from his own collection), described by Mr. Smith at the August meeting, upon the relation of which to the aberrant *Vespidæ* he made some observations. Also specimens, with drawings and dissections, of two species of a new Australian genus of bees allied to *Colletes* and *Hylæus* (from his own collection), one species of which Mr. F. Smith stated was in the collection of the British Museum, from which collection he had described it. Also a larva of one of the larger *Harpalidæ*, which had been destroyed by the larvæ of a parasitic *Proctotrupes*, about thirty of which had burst out of its body in various parts, and had then become naked pupæ, attached by the extremity of their bodies to their dead victim.

Mr. Shepherd exhibited a living larva of *Anesychia dodecea*, from Darenth Wood; also *Crambus aridellus*, female, *Oncocera lotella*, *Depressaria nanatella*, and other rare *Lepidoptera*, from Deal.

Mr. Stainton read a paper "On the Laws regulating Entomological Nomenclature," of which the following is an extract.

"In nomenclature it is of the greatest importance that entomologists be unanimous, for if each one choose to call one insect by a different name, and persist in so calling it, what an endless confusion must arise!

"Let us examine a little what are the fundamental laws of entomological nomenclature.

"I. The name first given to an insect by printed publication is always that which is to be retained.

"As a general law this is not denied; indeed it is the fundamental rule in all branches of Natural History; but there are certain exceptions raised to this rule by some *Lepidopterologists*.

"1st. That a name if erroneously given or ungrammatically constructed may be amended or changed.

"2nd. That no two species of the same main group should bear the same specific name.

"3rd. That the name of a *Geometra* must end in *aria*, of a *Pyralis* in *alis*, of a *Tortrix* in *ana*, of a *Tinea* in *ella*.

"We will examine these three exceptions *seriatim*.

"1st. *A name if erroneously given or ungrammatically constructed may be amended or changed.*

"Thus, as the Linnean *Tinea padella* does not feed on *Prunus padus*, and another allied species does feed on it, two eminent German *Lepidopterologists* have conceived themselves at liberty to change its name, and while one calls it *agnatella*, the other calls it *variabilis*. Herein both are manifestly wrong; and I believe all entomologists will agree with me that to change a name because it is incorrect,—whether, as in this instance, from its implying a habit which the insect does not possess,—whether from its not possessing some peculiar termination,—or whether from its being erroneously or ungrammatically constructed,—is to enter an interminable waste of complexity; for how are persons to be persuaded to agree as to what constitutes an incorrectness? The meaning or formation of a name is of incomparably less importance than the acceptance of the name itself, the change of a name being a greater evil than the currency of one erroneously or ungrammatically constructed.

"2nd. *No two species in the same main group should bear the same specific name.*

"I ask why? and am told it creates confusion. Are, then, Lepidopterists so much more subject to be confused by repetition of names than students in other branches of Natural History? In Botany have we not, for instance, an alpina in numberless genera? and is it not simpler for the memory to retain this name than if we had a different specific name in each genus, intended to designate an alpine habitat for the plant? And turning to insects, how often in Coleoptera do brevipes, rufipes, &c., occur in the same main groups!

"Yet it creates confusion to have a *Peronea rufana* and a *Carpocapsa rufana*, and the latter must change its name and become *Westwoodiana*! How do we know it will retain that name? Perchance, before the publication of that name, a Lepidopterist in New York, Sydney, Calcutta or Kamschatka, has described an *Eupæcilia* by the name of *Westwoodiana*; a new name is then selected for the unfortunate *Carpocapsa*, which might perhaps again have to undergo the same fate: in short, the poor insect seems likely never to attain that essential requisite, a fixed name,—when lo! a fortunate chance enables a Swedish student to recognize as a Linnean species the *Peronea rufana*, *W. V.* Of course this *rufana* is now dropped for the older name, and the unfortunate *Carpocapsa* is allowed quietly to retain its cast-off clothing.

"I now ask which creates most confusion?

"But why should there be more confusion between *Peronea rufana* and *Carpocapsa rufana* than between *Pieris Cratægi* and *Trichiura Cratægi*, or between *Thecla quercûs*, *Smerinthus quercûs* and *Lasiocampa quercûs*? I am told that the limits of our genera are so uncertain that *Peronea rufana* and *Carpocapsa rufana* might be placed in the same genus: well! when that does happen it will be time enough to change one of them; to change it on the mere contingency is making present confusion to prevent some future confusion, which may perhaps never come to pass.

"3rd. *The name of a Geometra must end in aria, of a Pyralis in alis, of a Tortrix in ana, of a Tinea in ella.*

"Well! this is creeping into a corner with a vengeance: we begin with a rule general to all branches of Natural History; to this one objection is raised, applying only to one order of insects; and here we have another objection, actually applying to only a portion of that one order. Truly this absurdity has no limits!

"Now I confess myself at a loss how to argue this last point, for I have in vain applied for a reason for this objection, and the only reply that I have ever yet been able to get is, that it is convenient by the termination to know at once to what group an insect belongs: then why not apply it to the other groups? Moreover, if *alis* implies a *Pyralis*, what is *Bombycia viminalis*? If *anus*, *ana*, implies a *Tortrix*, what are *Pamphila sylvanus*, *Nudaria mundana* and *Lithosia complana*? If *ellus*, *ella*, implies a *Tinea*, what are *Deilephila porcellus*, *Deiopeia pulchella*, *Cybosia mesomella* and *Setina irrorella*?

"I should have imagined that the advocates of this system of uniformity might have quoted the example of Linneus; but he had two terminations for the *Geometræ*,—*aria* and *ata*,—and as the objectors of the present day have thought fit to change all his *ata*'s into *aria*'s, not even being aroused from the folly of their theory by the fact of *prunata* of Linneus becoming thereby a dropped name, there being already a *prunaria*: they cannot quote his example as any argument on their side; and it does not appear that Linneus laid down any rules on this subject: he merely gave to his *Geometræ* with pectinated antennæ the termination *aria*,—to those with simple an-

tennæ the termination *ata*,—to the Pyrales the termination *alis*,—to the Tortrices the termination *ana*,—and to the Tineæ the termination *ella*; but that he intended these rules to be so rigid that an insect named as a Tinea should—on being found to be a Tortrix—change its termination, we are surely not warranted to believe. Why should not Pomonella and Turionella retain the names that Linneus gave them? Moreover, if Turionella becomes—as a Tortrix—*Turionana*, what becomes of its parasite, Ichneumon *Turionellæ*? Besides the last innovation, the change of the *ata*'s into *aria*'s has been of such recent occurrence, that if tamely submitted to as an inevitable infliction, it will probably tempt some future writer to give uniform terminations to the Noctuæ or other groups of the Lepidoptera.

“The second fundamental law of entomological nomenclature is—

“II. No two species in the same genus should bear the same specific name.

“I am told this is a truism, and needs no argument; but unless it is adopted, and the first primary law only is considered, we should be obliged to restore to *Hypericella*, *Hbn.*, the older name of *Liturella*, *Hbn.*, there being already a *Liturella*, *W. V.*, in the genus *Depressaria*: in fact, this law is the only admissible exception to the first law.

“Since writing the above, my attention has been called to a ‘Report on the Laws of Zoological Nomenclature,’ published in the ‘Proceedings of the British Association,’ in 1842, and I find that the following rules were there laid down.

“1. The name originally given by the founder of a group or the describer of a species should be permanently retained, to the exclusion of all subsequent synonyms (with the exceptions about to be noticed).

“2. The binomial nomenclature having originated with Linneus, the law of priority in respect to nomenclature is not to extend to the writings of antecedent authors.

“10. A name should be changed which has before been proposed for some other genus in Zoology or Botany, or for some other species in the same genus, when still retained for such genus or species.

“11. A name may be changed when it implies a false proposition which is likely to propagate important errors.

“12. A name which has never been clearly defined in some published work should be changed for the earliest name by which the object shall have been so defined.

“13. A new specific name must be given to a species when its old name has been adopted for a genus which includes that species.

“14. In writing zoological names, the rules of Latin orthography must be adhered to.

“Of these rules, the first two will be unhesitatingly assented to as axioms. Rules 3 to 9 inclusive are applicable to genera only, not to species, and thus do not come within the limits of my present inquiry. Rule 10 is identical with my second law, ‘that no two species in the same genus should bear the same specific name.’ Rule 11 is the first from which I dissent, ‘a name may be changed when it implies a false proposition which is likely to propagate important errors.’ This, we are told, ‘is a concession to human infirmity,’ but I beg leave to decline this concession. The report adds, ‘Instances of this kind are indeed very rare, and in some cases, such as that of *Monodon*, *Caprimulgus*, *Paradisea apoda* and *Monoculus*, they have acquired sufficient currency no longer to cause errors, and are therefore retained without change. But when we find a Batrachian reptile named in violation of its true affinities *Mas-*

todon saurus, a Mexican species termed (through erroneous information of its habitat) *Picus cafer*, or an olive-coloured one *Muscicapa atra*,—or when a name is derived from an accidental monstrosity, as in *Picus semirostris* of Linneus and *Helix disjuncta* of Turton, we feel justified in cancelling these names, and adopting that synonym which stands next in point of date.' And again, 'At the same time we think it right to remark that this privilege is very liable to abuse, and ought therefore to be applied only to extreme cases and with great caution. With these limitations we may concede that a name may be changed when it implies a false proposition which is likely to propagate important errors.' In the first place, there is here no positive rule laid down; and unless a rule is fixed and definite, of what use is it? In the second place, who is to decide when a name is or is not likely to propagate important errors? A very large proportion of insects are named after plants on which they do not feed: but as a name is not meant to be a description, why change it because if viewed as a description it is found incorrect. Rule 12, which throws down manuscript names, or names published in a Catalogue (without any description), is a regulation quite in accordance with my own views. Rule 13 having been generally adopted in past cases, and being not likely to be called into use in future, may safely be conceded: thus, instead of *Cossus cossus*, *L.*, we say *Cossus Ligniperda*, *F.* Rule 14, 'In writing zoological names the rules of Latin orthography must be adhered to.' This is a very doubtful rule, especially when we find it recommended that 'when a name has been erroneously written, and its orthography afterwards amended, we conceive that the authority of the original author should still be retained for the name, and not that of the person who makes the correction.' Are we then to say *Sulzeriella* of Linneus, *Christiernini* of Linneus, *Tapetiella* of Linneus, such names not occurring in Linneus at all? but instead thereof, *Sulzella*, *Christiernana*, *Tapezella*: surely this would be making confusion, not lessening it.

"I cannot conclude this paper without a few words in reply to the facetious remarks of the Editor of the 'Zoologist,' (Zool. 2549). He states that the novelties in the laws to which his remarks refer will not be attended to: now I utterly deny that they contain any novelties. Let us see if we can find one. Is it in Law No. 1, that 'the name first given to an insect by printed publication is always that which is to be retained'? Surely this is no novelty; for I observe in the 'Zoologist,' (Zool. 2136), the words, 'I cannot pronounce too emphatically that priority is the only law I can ever consent to acknowledge in the nomenclature of species,' and they are followed by the signature, 'Edward Newman.' Is the novelty in Law No. 2, that 'No two species in the same genus should bear the same specific name'? Having been told by so many parties that is an axiom and a truism, I cannot surely believe there is any novelty in it. Law No. 3 is no new law, but merely a deduction from Law No. 1; and any one fully granting Law No. 1 cannot dispute this law. The writer further adds, that in these laws 'there are good points, but none of these have the charm of novelty, neither do they require re-enactment.' It must surely have escaped his notice, perhaps in the hurry of the moment, that an attempt is being made to supersede the law of priority in certain groups of Lepidoptera, by a law (by many people considered a *novelty*) of uniform terminations: I and others, therefore, deemed it necessary to remind the authors of this crotchet of the law of priority, by proposing to re-enact it."

Mr. Westwood said he was opposed to the rigid adoption of uniform terminations of names, and he respected the law of priority of name generally, but he thought that

a name might be changed with advantage if it gave a wrong idea of the food of an insect. Thus, he would substitute Rosana for Quercana if an insect so named were found to feed on the rose and not on the oak.

Mr. Waterhouse thought uniform terminations of names not important, and there was no rule laid down for them, but as their use in certain groups had become common it might be as well to continue the practice. He also thought that the rule of priority ought to be observed, but he would except cases of manifest orthographical error, and such names as would give a wrong idea of the geography of species.

Mr. Douglas thought that the adoption of uniform terminations to specific names in a portion of one order was unphilosophical and puerile. With reference to the objections of Messrs. Westwood and Waterhouse, that a name conveying a wrong idea of habit or country should be altered, he did not see much force in them, because the student of Natural History—the only person to whom such a thing could be deemed to be of importance—would always look farther than the name; and as every entomologist might have an objection to raise if these were allowed, none whatever should be admitted, but the law of priority held inviolable.

Mr. Westwood stated, with reference to an inquiry in the 'Zoologist' as to the best pins for Micro-Lepidoptera, that Senator Van Heyden used very fine silver wire, the chief advantage of which was its non-liability to corrosion.

A conversation then arose on the subject of setting Micro-Lepidoptera flat, in the course of which Mr. Westwood said the flat was preferable to the deflected method in other orders beside Lepidoptera, and that Mr. Shuckard had long since shown how much better the characters of the wings of Hymenoptera were exhibited if they were in a horizontal position.—*J. W. D.*

Occurrence of Colias Hyale, &c. at Dover.—It may be interesting to all who put faith in the septennial appearance of *Colias Hyale*, to know that between the beginning and ninth of the present month I have captured eight specimens at Dover, where I have been collecting for the last few weeks; I have also taken about eighteen specimens of *Colias Edusa* in the same locality. It is singular that *C. Hyale*, which generally appears before *C. Edusa*, did not occur until some days after I had met with the latter. I searched most constantly for *Daplidice* and *Lathonia*, but did not see a single specimen of either. I have also captured there, with other things of less moment, *Dianthæcia carpophaga*, *Aspilates gilvaria*, *Emmelesia bifasciata*, *Ptychopoda ornata*, *Carpocapsa Lepastriana*, *Eupœcilia sodaliana*, *Cochylis rupicola*, *Lozopera alternana*, *Lozopera Dubrisana*, *Lozopera Francillana*, *Depressaria propinquella*, *Depressaria Alstrœmeriana*, *Oncocera carnella*, and also an *Eupithecia*, which appears to be different from any of our recorded species. My friend, Mr. S. Stevens, captured a single specimen of *Spælotis cataleuca*, at Dover, at the latter end of August. This I believe to be a new locality for this insect. Since my return home, I have had two larvæ of *Acherontia Atropos* brought me, one of which has since changed.—*F. Grant; Putney, September 15, 1849.*

Occurrence of Colias Hyale at Lewes.—I beg to say that I had the pleasure of capturing, during the early part of this month, two fine specimens of that beautiful insect *Colias Hyale*. The first, a male, I caught on the 4th instant, about two o'clock in the

afternoon, near here in a valley between the Downs, flying rather swiftly over a variety of flowers, upon some of which it settled for a moment or two. The second, a fine female, I took on the 7th instant, about half-past two o'clock, p.m., in a clover-field, on the Ringmer road, about a mile-and-a-half from here. Both specimens are in fine preservation, and are the only ones I have seen or heard of being taken this year in this neighbourhood.—*H. Tompkins; School Hill, Lewes, Sussex, Sept. 22, 1849.*

Non-occurrence of Colias Hyale in 1849.—I was just about to send you a notice, referring to the non-appearance of this insect, as the 'Zoologist' was put into my hands and your note calling attention to this being the year for its reappearance caught my eye. I am afraid this theory will fall to the ground, as I have just returned from spending a week along the Kentish coasts, and not a specimen of Hyale could I catch sight of, although I searched specially the clover, lucerne, and other fields and sloping banks in all directions; and I have a friend, who has been staying some time at Dover, who has also been on the look-out, without success; but perhaps some of your other correspondents have been more successful. Edusa is just appearing.—*Samuel Stevens; 24, Bloomsbury Street, August 30, 1849.*

More about Setting Flat.—In his eagerness to have a round with me, Mr. Douglas says, "How is it that in placing a moth on a rounded cork the wings have to be made to assume this form? If they were naturally rounded this would not be necessary." I am rather surprised at this remark. Is not the same care requisite in setting an insect flat? Has my friend forgotten the effect of death? That no insect when dead retains either the flat or round appearance without setting? Now, roundness conveys an idea of motion; flatness of rest. Can that then express motion which indicates rigidity? Let me be clearly understood. Every entomologist has seen Vanessa Atalanta walking about in all the pride of beauty. Set the wings of this butterfly flat, and try if you can thus give it the appearance of walking life. On the other hand, set them round, and you may fancy that the living and walking butterfly is before you. If the idea of walking cannot be conveyed by flat setting, much less can the vibratory motion of flight. What holds good in this is equally applicable to a more minute species. I pass over the effect of damp; it cannot enter into the argument. I fear my friend's variation is still more faulty than his air. I might add much more were I not unwilling to prolong the subject.—*John Sircom, Jun.; Brislington, September 3, 1849.*

Parasitic Larvæ observed in the Nests of Hornets, Wasps, and Humble Bees.—I see you have noticed in the Zoologist (Zool. 2375) that Mr. Westwood had exhibited a specimen of the larva of Velleius dilatatus taken by me in a hornet's nest. If you think a few hasty remark on the economy of some of the parasitic larvæ I have observed in the nests of hornets, wasps and humble bees will interest your readers, I shall be happy to furnish you with the following. I have often amused myself with taking the nests of these insects, and have bred some of the larvæ which are found as parasites in them. Last year I was on the look-out for nests of hornets and wasps for the museum at Kew, as my friend Sir W. Hooker seemed to think these products of our "native paper-makers" would be legitimate appendages to his most interesting illustrations of Economic Botany. Notwithstanding the ticklish character of these articles, and the bad reputation which railway traffic bears for careful handling of its luggage, if you ever visit the Kew Gardens, I think you will say that I have thoroughly succeeded in transporting some handsome specimens free from all injury. Next to the care taken in their packing, the great secret lay in myself attending them as a fellow-traveller,

and seeing that the chests in which they were placed were not tumbled about when removed from the luggage-van. A large hornet's nest attached to the gable end of a cottage, is really a splendid specimen. The nest in which the *Velleius* was found, being sent afterwards without an attendant, was utterly spoiled through carelessness, though it was far better secured by its position in the middle of a hollow tree. This latter was brought home on the 18th of October, when I discharged from it 166 queens, 22 drones, and 9 neuters; and on the same day I discharged from the large nest, above alluded to, nearly 100 queens, a few drones, but no neuters. The nests were on my study table, and the insects were compelled to evacuate them by my pouring alcohol over them: as they came out I caught them with a pair of dissecting forceps, and kept many of them alive for some months under a large bell-glass. The neuters soon died, the drones did not live long, but the last of the queens was alive as late as February. A little attention to their habit of flying from the nest directly to the window preserved me from being stung at home; and neither myself nor assistants were stung abroad, though we took more than six hornet-nests, with no other precaution than the active use of a butterfly-net, one person working whilst the other stood guard. They often flew directly at us, but by standing perfectly still, and gently waving the net, they were always persuaded to change their aim, and were caught and killed accordingly. Owing to their building in exposed situations, we found it impossible to stupify or kill them with spirits of turpentine, as we can so easily contrive to do with the wasps; and they have the awkward habit, moreover, of being very active all night, running about the tree in which their nest is lodged, and flying directly at a lanthorn which may be in the hand of the too curious observer. Without saying more of the builders themselves, I will speak of the parasites to which I have alluded. I took about thirty or forty specimens of the *Velleius* from the hornet's nest, by placing a bowl under it, into which most of them fell within a month of the time after it had been brought home. Some I picked off the lowest and exposed lamina of the comb, as they were actively traversing it, and poking their heads into the cells in search of food: most of these were placed in a glass jar among rotten wood in a powdered state. They burrowed in this, and I could see many of them alive in March, each in a separate cavity, which he had formed for himself against the bottom or side of the jar. I am sorry, and rather ashamed to say, that my over-care for their welfare destroyed them. Thinking they were getting too dry, I poured in a little water once or twice, and after an absence of three or four days, on one occasion, I found they were dead. I had, however, saved some in spirits, and both Messrs. Westwood and Curtis have been furnished with specimens for anatomy and description. I had no opportunity of observing the manner in which they fed on the hornets or their larvæ, though I presume, from their habit of searching the cells, they would not have scrupled to destroy the latter. I gave them some dead hornets when in the jar, and some of these were partially attacked, but they were mostly left untouched. Another interesting parasite, confined to wasps' nests, I have often met with, but have not yet seen its larva; I allude to the well-known *Rhipiphorus paradoxus*. One of these I have observed gnawing its way through the silk covering of a closed cell, as Mr. Curtis has described, which proves that it had not destroyed the larva of the wasp before this had changed, or was about to change, to the pupa state. I can speak more positively of the habits of the larvæ of certain parasitic Diptera which are found in the nests of wasps and humble bees. I have bred several specimens of *Volucella pellucens* and *Pegomyia inanis* from the nests of wasps, and several of *Exorista devia* from those of

humble bees. There is also a larva in humble bees' nests, which is extremely like that of *Volucella pellucens*, but whether it is this species I am unable to say, as I failed to breed it some years ago, when I had captured several, and was trying to do so. These larvæ, at least, in their early stages, are found crawling about the loose stones and earth immediately below the nests of wasps. When the wasps (*Vespa vulgaris* and *V. rufa*) excavate the cavity in which their nests are built, they are unable to remove large stones, which continue to subside as the excavation advances, and, ultimately, form a sort of rude pavement below. I have placed an example or two of this in the Kew Museum. These stones are kept moistened by matter dropping from the nest, and on this and dead wasps, the maggots seem to revel. But later in the season I find them, especially those of the *Volucella*, travelling about among the comb itself. I have not witnessed the fact in the case of wasps, but in that of the humble bees, I have repeatedly seen these parasitic larvæ attack the pupæ of the bees, and a curious process it was to witness. They would work at the cocoon in which the pupa was enclosed, extending and briskly agitating their mouth and moistening the surface, till, in a short time, they had worked a hole through it: they then pierced the helpless pupa of the bee, entered its body, and devoured the whole of its interior, leaving the case as clean picked as the shell of a lobster by a hungry supper-eater: I have preserved a couple of these empty cases, which I saw cleaned out about twelve years ago. When satisfied with their meal, they come out, and then appear gorged and half torpid, and are covered with a moist disagreeable exudation, reminding one of the descriptions given by Arctic travellers of a gluttonous Esquimaux surfeited with blubber. I have several times seen the larva of *Exorista devia* come out of the pupæ of humble bees, and turn to pupæ themselves, which I have bred into flies. As the larvæ of these humble-bee parasites are found crawling about at the bottom of their nests, just as those which we find under wasps' nests, I am inclined to think that these latter also finish up their last meal much after the same fashion as the former: I have never witnessed the fact (as I said before) because it is not so easy to follow up this sort of observation in a wasp's nest, as in that of a humble bee, without more care than I have thought fit to bestow upon the investigation. Entomologists will be satisfied that I have given the right names to these Diptera, when I mention that I have Mr. Curtis's authority for them. It has been more through his expressed wish that I should state what I had witnessed of the habits of these larvæ than from any belief that I had any thing very novel to record, that I am induced to send you this account.—*J. S. Henslow; Hitcham, Hadleigh, Suffolk, September 11, 1849.*

On the Economy of Atherix Ibis.—In your notice of the Proceedings of the Entomological Society on the 2nd of July last, (*Zool.* 2531), Mr. Westwood is stated to have shown some flies and their eggs, part of a cluster found about twelve miles from Derby, and sent to him by Mr. Spencer, of that town, who had remarked, that each fly seemed to remain as a protector of the eggs it had deposited. They were identified as *Atherix Ibis*. As some further account of the discovery of this nest may be interesting to the readers of the '*Zoologist*,' and may tend to throw some light on the natural history of the insect, I have obtained, from the same very intelligent gentleman, the following additional particulars. This cluster of insects was found on the 11th or 12th of June last, upon a bough of hawthorn, hanging about a foot above a brook of five feet wide, called Garendon Brook, nearly one mile from the village of Hathern, in Leicestershire, by Mr. William Frederic Phillippis, son of the rector of Hathern. It appeared like a swarm of bees on a small scale, being about the size of the hand of a

child of three years old, and many of the parent flies continued alive for several days and still attached to the cluster. The larva, when examined under a lens, had (with the exception of the head, which was flatter) the appearance of a minute caterpillar rather than that of a maggot; and it had a forked tail about one-third the length of the body. When the larva was allowed to fall into water (which was evidently the intention of the parents from the situation they had selected for this cluster), its action was exactly like that of the larva of the gnat, having the power, which it exercised with evident delight, of raising itself in the water by an incessant undulatory motion in a vertical plane, and when it had risen as high as it liked, allowing itself quietly to descend by its own weight, with the head downwards, the body stretched out, the legs underneath, and the forked tail spread so as to form a rudder. By supplying the brood with rain-water, and changing it once in twenty-four hours, many of the larvæ were kept alive for four or five days. The eggs contained in the cluster were hatched in successive broods, generally in the night time, and the process of hatching extended over a period of more than a week. At first the cluster was placed over a glass vessel without water, and the whole of the larvæ then hatched were found dead the next morning, which was never the case after they were permitted to fall into the water. A small quantity of garden mould was applied to one patch, but its pungency killed them, and to another a few drops of an infusion of animal matter were added, but without any prolongation of life. From these circumstances, Mr. Spencer inclines to the opinion, that these larvæ obtain their food, while clinging to the bottom or side of the brook, and that they occasionally come to the top of the water, possibly for a fresh supply of air. A part of this singular cluster was given to me; it is now too much shrivelled and decayed to be of any use to you, or I would have forwarded it. Mr. Curtis, in the first volume of his 'British Entomology,' gives a good representation of the female insect, of which all the specimens found on the cluster consisted: the supposed male, also represented in the same plate, I have not yet met with.—*Oswald Mosley; Rolleston Hall, near Burton-on-Trent, September 22, 1849.*

Enquiry respecting the Wild Cat.—There is no fact in British Natural History received with more universal credence, than the existence in our woods of a species of cat, perfectly distinct from that everywhere domesticated amongst us. I am anxious to ascertain on what authority, or on what ground, this universal credence is based. I shall be obliged to any observer, who, without citing Fleming, Bingley, Bell, or any other printed authority, will give particulars of the capture (not seeing) of such an animal, and will add the following data:—

Exact measurements.

Character of the fur.

Date and locality of capture.

If kept alive, record of its habits in confinement; if preserved, where?

Reasons for supposing it distinct, as a species, from those domestic cats which have taken to the woods by choice.—*Edward Newman.*

Food of the Water Vole.—Referring to my note of the 23rd of July on the food of the water vole, I now find that this animal does not appear to be exclusively herbivorous, but also to indulge in testaceous diet. A short time since I visited a broad in this county, on a small island in a shallow part of which, I observed a great number

of the empty shells of the freshwater mussel, which had all been opened by a portion of the shell having been eaten out from both valves, either immediately or nearly opposite to the hinge. The marshman, who was with me, assured me that this was the work of the water vole, which procured these muscles by diving, and then opened them in this manner, and afterwards devoured their contents. I am inclined to believe that this is correct, as I observed a young water vole lying dead on the island, and as it was full of what appeared to be the burrows of these animals. The locality did not appear to be one likely to be frequented by the Norway rat.—*J. H. Gurney; Easton, Norwich, September 6, 1849.*

The Yellow-breasted Marten (Mustela foina) Breeding near Bishop's Auckland.—On the 14th of August, the nest of a yellow-breasted marten, containing three young ones, was found in North Carr wood, on the banks of the Weir; all efforts to take the parents failed, and the young ones died the day after they were found. About fourteen years ago an adult specimen of the yellow-breasted marten was trapped in Stanley wood, but with us it is of very rare occurrence.—*Joseph Duff; Bishop's Auckland, September 11, 1849.*

[Mr. Duff will oblige me very much, and I conceive many readers of the 'Zoologist' will also value the information, by stating in what particulars the yellow-breasted marten differs from the commoner species. I shall be much pleased to have an opportunity of publishing the admeasurements of the two species for comparison; also the differences of habit, and all other particulars: the discrepancy in the colour of the breast, attributed by various writers to age, sex, or season, need not be noticed.—*Edward Newman*].

Occurrence of Sylvia Orphea in Yorkshire.—I could not send you a description of Sylvia Orphea in time for insertion in the September number of the 'Zoologist.' My bird is evidently a female, and was observed in company with its mate for a considerable time before it was shot. The other bird had a black head, and the description I received, left no doubt on my mind that it was a male bird of Sylvia Orphea. The bird, of which I send you a description, was shot in a small plantation near the town of Wetherby, on the 6th of July, 1848, and was, unfortunately, very ill set-up by the man who obtained it: it had the appearance of having been engaged in incubation from the state of its plumage. Mr. Graham, my bird-stuffer, at York, hearing that a very uncommon bird had been shot, went over to Wetherby, and, fortunately, obtained the specimen for my collection. It has the beak black and very strong, eight lines in length, the upper mandible very much grooved. The whole upper part of the plumage dark ash-coloured brown. The outer feather of the tail white; the second on each side edged with dirty white, the rest of a brownish black. Chin dirty white; throat and belly brownish white; under surface of the wings and vent light brown. Legs very strong; toes and claws black. Total length 6 inches 3 lines. Since procuring this specimen, I have received a male bird from France, with four eggs, and send you a description, in case any other specimen may fall into the hands of your readers. The head and cheeks to behind the eyes black, on the top of the head the black blends itself into ash-coloured gray, and so continues over the upper parts of the plumage. Wings almost black, edged with ash-coloured brown; the external feathers on each side of the tail white, the inside edges light brown; the second

tipped with white, the rest blackish brown. Throat and belly of a pure white; breast and flanks of a white, with a very delicate rose tint; vent and under coverts of the tail of a light brownish red. The lower mandible of a yellowish brown at its base, the upper one black, much grooved, and thick. The legs, claws, and toes black and strong. The length same as the female. This bird is very common in Italy and the southern parts of France and Piedmont, and sometimes is found in Switzerland. It builds its nest sometimes in low bushes, and not uncommonly in holes of rocks and walls, also on the roofs of deserted houses, and lays four to five eggs, white, irregularly marked with yellowish brown spots, chiefly at the larger end, about the size of the garden warbler, but more pointed at the small end. This description, which agrees most accurately with my birds and eggs, I have taken from the 'Manuel d'Ornithologie' of M. Temminck, tome i. p. 200. I may, perhaps, be allowed to add, that this is now the third addition to the list of British Birds which has been made by the zeal and activity of Mr. Graham, the *Larus Rossii* and *Otis Mc Queenii* having first come into his hands.—*W. M. E. Milner; Nunappleton.*

The Ring Ouzel (*Turdus torquatus*) *Nesting near Lowestoft.*—I am informed that, during the spring of this year, two pairs of the ring ouzel nested at Gunton, near Lowestoft, which is a much more southerly locality than the usual nesting places of this bird, though I believe the same thing has previously occurred in that parish.—*J. H. Gurney; Easton, Norwich, September 6, 1849.*

Note on the Cuckoo (*Cuculus canorus*).^{*}—As you have contributed so much to the information and amusement of that numerous class of readers who take an interest in subjects of natural history, I consider it my duty to communicate first to you, what appears to me a new fact in the habits and character of that general favourite the cuckoo. An egg of this bird was brought to me on the 6th inst., which had been taken from the nest of the yellow bunting, at a short distance from this town, and the boy who got the egg gave the following account, which I think may be relied on. When bird-nesting on the previous Saturday, he found a nest of the gold spink (a local name for the yellow bunting) with the young birds just hatched. On visiting the nest the following day, he flushed the old bird, having seen her sitting on it, but the young birds were all excluded, and were lying dead near; and, to his surprise, a single egg—the one he brought to me—occupied the place of the callow brood. He took away the egg (which is now in my possession), so that it is impossible to corroborate the statement in any degree. The above circumstance was first named to me by Tom Green, a well-known character and naturalist in this town, whom I have always found to be accurate in his observations on birds, and by him I was referred to the boy. On my objecting to Green that the accident appeared incredible, because unnatural, and contrary to strong parental instinct, he replied, "Aye, Sir, but little birds are mightily ta'en up with a cuckoo, they'll aw'most dee out for them;" and he related the following fact which came under his own observation. When out with his gun, collecting birds to stuff (animal-preserving being one of his many trades), he shot at and wounded a cuckoo, which, after flying some distance, fell upon a hedge with its wings outstretched; the attendant bird, which in this case was one of the pipits, continued in the flight of its patron after the shot, and when Green approached, he found

^{*} This letter is addressed to Mr. Yarrell, by whom it is obligingly communicated.

it sitting on the body of the dead cuckoo. It has been supposed by some, that small birds follow the cuckoo for the sake of annoyance, mistaking it for a sparrow-hawk ; to give public notice of a pirate abroad, and to warn all peaceful subjects of the air against a common danger. But this is clearly not so, for the flight and cries clearly distinguish the feelings in the two cases. The attendance on the cuckoo is at a distance, silent and respectful ; but in the other, we have a sort of hue and cry raised, as it were, against a felon, and which is kept up from place to place, if not to the shame, at least to the discomfiture of the culprit. The cuckoo is certainly a favourite with them, as Green says, " they, the lesser birds, are mightily ta'en up with it," but to what it owes its influence with its parasites I leave to you and other philosophical naturalists to determine, I am content to relate, in simple terms, an interesting fact.—*W. C. Newby ; Stockton.*

Swallows Hibernating in the Cliff at Hastings.—A labourer, named William Joyce, who is now employed in excavating part of the East Hill for the foundation of a house, told me yesterday that, in the month of *December* about fifteen years ago, while he was working for Mr. William Ranger, who had the contract for cutting away the " White Rock " which used to stand between this place and St. Leonard's, the men found an immense quantity of swallows in a cleft in the rock. The birds were clinging together in large " clots," and appeared to be dead, but were not frozen together, and the weather being rather warm for the season, nor were they at all putrid or decayed. The men carried out at least *three railway-barrows* full of the birds, which were buried with the mould and rubbish from the cliff as it was wheeled away. Some people from the town carried away a few of the birds to " make experiments with," but Joyce never heard any more of them. He mentioned the names of four persons now in Hastings, who were then his fellow labourers, and says, that forty or fifty of Mr. Ranger's workmen were on the spot when the birds were found, and can confirm what he says, both as to the finding and the very great quantity of the birds. There are many crevices in the seaward surface of the cliffs about here, which apparently penetrate the cliff for several yards. The birds were found about ten feet from the surface of the rock facing the sea, and not very high up. — *Edward Brown Fitton ; Hastings, September 8th, 1849.*

Occurrence of the Bustard (Otis tarda) on Salisbury Plain.—I have had the good fortune to see the great bustard on Salisbury Plain. It was on the 9th of August last that I made a little trip, with a party of friends, to Stonehenge, and upon our return, we had proceeded but a short distance before the bird in question made its appearance. It must have been about half-past six, or perhaps seven o'clock, in the evening, when we first saw it. We had then just passed a large plantation of firs, which forms a conspicuous object from Stonehenge. From the first moment of seeing the bird till its ultimate disappearance, seemed to be a considerable time, but as it had traversed a great distance whilst in view, the length of time was probably deceiving, and perhaps was not more than eight or ten minutes. During this time, it was almost constantly on the wing, flying with a heavy, but tolerably rapid flight, and at an average height of about twenty feet above the ground. But once only did it approach within gunshot of us ; it then crossed the road in front of us, and as I sat in front of the carriage in which we were travelling, I saw its colours very distinctly. I asked the driver if he knew what that bird was, and he said he did not, and had never seen such a bird in his life. I then asked him what he imagined was the size of the bird, and his answer was, " it can't be far short of a turkey." I afterwards put the latter question to

the party within the carriage, and a lady said, she "thought it was about as large as a turkey." I then told them the bird was no other than the great bustard. The bird was evidently very shy, and I should say it would be very difficult to approach within gun-shot of it. Once when it settled (which it did two or three times before we ultimately lost sight of it), although at a great distance from the road—I should think full a quarter of a mile—it soon rose again when the distance was but little shortened, it having settled a little in advance of us. It then took a long flight, and again settled, almost directly ahead of us, close to the edge of a corn-field, and at a still greater distance; I then saw the bird for the first time on the ground, its pale colouring rendering it visible, still the distance was so great that I could not have felt certain that the pale object I saw was really the bird (for it did not run) had it not got up again whilst I was looking at it; it then flew over the brow of a hill and was seen no more. On other occasions when it went down, I only concluded it had settled, from its getting up again from the same spot. Even when the bird was nearest to us, I could see neither its head nor its feet, and this somewhat surprised me, for I fully expected the neck would be outstretched when the bird was on the wing, and that perhaps, the feet would hang down. Judging from the size, I suspect the bird was a female.—*G. R. Waterhouse*; 4, *Campden Hill Terrace, Bayswater, September 8, 1849.*

Occurrence of the Purple Heron (Ardea purpurea) near Driffield.—A remarkably fine specimen of the purple heron was recently shot by the stream at Lowthorpe, near here; and is now in the collection of Mr. Thompson, farmer, of Harpham, in the adjoining parish of Burton Agnes.—*F. O. Morris*; *Nafferton Vicarage, near Driffield, September 20, 1849.*

Colour of the Eyes in the Night Heron (Ardea Nycticorax).—In the 'Zoologist' for this month I see an adult specimen of the night heron has been taken at Wisbeach, and it seems to be considered a curiosity from having red eyes. I have often shot these birds abroad, and have always found the adult birds to have red eyes.—*J. N. Wedderburn*; *Auchter House, Dundee, September 10, 1849.*

Occurrence of the Avocet (Recurvirostra avocetta) at the Tees Mouth.—During the last spring a specimen of this bird was shot at the Tees Mouth, by a person who roasted it for supper: the head and legs are in the possession of Mr. Green, of Stockton.—*Joseph Duff*; *Bishop's Auckland, September 18, 1849.*

Occurrence of Temminck's Stint (Tringa Temminckii) near Penzance.—I had an opportunity of seeing an interesting specimen of this diminutive Tringa a day or two since in the hands of Mr. Vingoe, our zealous naturalist: it was associated with some little stints, one or two of which were secured. The plumage of Temminck's stint, in immaturity and previous to the first autumnal moult, is glossy olive-brown on the back; the edges of the feathers being fringed with a narrow border of white. The comparative shortness of the tarsus is one of its best distinctions from its congener, *Tringa minuta*.—*Edward Hearle Rodd*; *Penzance, September 17, 1849.*

Occurrence of the Landrail (Crex pratensis) in Bermuda.—When out in quest of ornithological specimens, on the 25th of October, 1847, I was much surprised by starting a bird with whose flight I was quite familiar. I shot it, and it proved to be a landrail, a male bird of the year. This bird was very fat. What could have driven it so far west?—*J. N. Wedderburn, Auchter House, Dundee, September 10, 1849.*

The Moorhen (Gallinula chloropus) roosting in Willow-trees.—The other evening, when passing a pool at Burton Agnes, I observed several moorhens roosting on willow-trees, fifteen and twenty feet from the ground. Is this their usual habit? I sup-

posed they roosted on the ground.—*F. O. Morris ; Nafferton Vicarage, Driffield, September 20, 1849.*

[I believe the circumstance here mentioned is not uncommon.—*Edward Newman*].

Occurrence of the Pelican in France.—Un fait curieux est signalé par M. Gellé, curé de Guîtres (Gironde) ; c'est l'apparition en France du Pélican. Buffon n'a mentionné que deux oiseaux de cette espèce qui ont été vus de son temps dans notre pays, l'un dans la Dauphiné, l'autre sur les bords de la Saône. Cette fois, les habitants de Sainte-Martin-en-Laye, canton de Guîtres, en ont aperçu cinq qui ont mis en émoi tous les habitants de la contrée. On leur donna la chasse, mais un seul fut tué. Les autres continuèrent leur voyage jusque dans la Charente-Inférieure, ou un second a été atteint. "Ces deux énormes oiseaux," dit le curé de Guîtres, "ornent mon cabinet d'ornithologie ; ils pèsent chacun de huit à neuf kilogrammes, ont un bec de 46 centimètres de longueur, une envergure de 4 mètres, d'une besace ou réservoir pour contenir de huit à dix litres d'eau.*

Occurrence of the Gull-billed Tern (*Sterna anglica*) *near Yarmouth.*—I have again to record the capture of the gull-billed tern at Yarmouth, two specimens having been shot there on the 1st instant. They were male and female, both adult, and beginning to assume the winter dress, the change having progressed somewhat further in the female than in the male bird.—*J. H. Gurney ; Easton, near Norwich, September 6, 1849.*

Occurrence of Buffon's Skua (*Lestris parasitica*) *near Redcar.*—A very fine specimen of Buffon's skua was taken alive by some fishermen near Redcar, on the 20th of June last, and was kept for some time at Thirsk, in the possession of a man named Hill. It has since died, and came into Mr. Graham's hands, who has set it up and sold it to Mr. Rudstone Read, who has presented it to the Yorkshire Philosophical Society.—*E. T. Higgins ; York, September, 1849.*

Occurrence of the Fulmar Petrel (*Procellaria glacialis*) *near Bridlington.*—A specimen of the fulmar petrel was killed this season at Bridlington ; a circumstance which I learned has not occurred there for forty years previously.—*F. O. Morris ; Nafferton Vicarage, near Driffield, September 20, 1849.*

The Birds of Oxfordshire and its Neighbourhood.

By the Reverends ANDREW and HENRY MATTHEWS.

(Continued from page 2541).

CLASS V.—*Occasional Visitors.*

This class, the last, though by no means the least, in the present arrangement, contains the greater part of those rare species whose visits may be reckoned among the remarkable events in the life of an ornithologist. Many of these were formerly common residents ; but now, expelled from their ancient haunts by the progress of cultivation, they are only met with as solitary wanderers, whose race in this part

* Addressed to Mr. Couch, by whom it is obligingly communicated.

of the world will probably soon be numbered with the things that have been.

Although doubtless the country at large has been materially benefited by the reclaiming of the waste land, still, as naturalists, we cannot but lament the effect which these alterations have had upon its feathered inhabitants. Species common even within our own recollection are now hardly ever seen: the kite, for instance, but a few years ago was abundant in many parts of this county; and again, in Dr. Lamb's MSS. it is recorded that the great bustard was in the habit of frequenting the neighbouring downs of Berkshire; but where are they now? The bustard has already disappeared, and the kite is fast following his steps.

The species of sea-fowl included in this class are such as occasionally make their appearance at any season of the year, especially after the prevalence of stormy weather.

A few whose names will be seen in the following list should perhaps have been distributed among the previous classes; but to this subject there will be occasion to allude in our remarks on the doubtful species.

Golden eagle (*Aquila Chrysaetos*).

White-tailed eagle (*Haliaeetus albicilla*).

Osprey (*Pandion Haliaeetus*).

Gyr falcon (*Falco Islandicus*).

Red-footed falcon (*Falco rufipes*).

Peregrine falcon (*Falco peregrinus*).

Kite (*Milvus vulgaris*).

Common buzzard (*Buteo vulgaris*).

Rough-legged buzzard (*Buteo Lagopus*).

Honey buzzard (*Pernis apivorus*).

Marsh harrier (*Circus rufus*).

Hen harrier (*Circus cyaneus*).

Montagu's harrier (*Circus cineraceus*).

Eagle owl (*Bubo maximus*).

Scops eared owl (*Scops Aldrovandi*).

Dartford warbler (*Melizophilus provincialis*).

Bearded titmouse (*Calamophilus biarmicus*).

Bohemian waxwing (*Bombycilla garrula*).

Wood lark (*Alauda arborea*).

Cirl bunting (*Emberiza Cirlus*).

Common crossbill (*Loxia curvirostra*).

Rose-coloured pastor (*Pastor roseus*).

Raven (*Corvus Corax*).

Hooded crow (*Corvus Cornix*).

Hoopoe (*Upupa Epops*).

Rock dove (*Columba livia*).

Black grouse (*Tetrao Tetrix*).

Red-legged partridge (*Perdix rubra*).

Andalusian hemipode (*Turnix Andalusica*).

Great bustard (*Otis tarda*).

Little bustard (*Otis Tetrax*).

Common crane (*Grus cinerea*).

Purple heron (*Ardea purpurea*).

Great white heron (*Ardea alba*).

Night heron (*Nycticorax Europæus*).

Common bittern (*Botaurus stellaris*).

Little bittern (*Botaurus minutus*).

White stork (*Ciconia alba*).

Glossy Ibis (*Ibis falcinellus*).

Curlew (*Numenius arquatus*).

Whimbrel (*Numenius phaeopus*).

Avocet (*Recurvirostra Avocetta*).

Black-winged stilt (*Himantopus melanopterus*).

Black-tailed godwit (*Limosa melanura*).

Bar-tailed godwit (*Limosa rufa*).

Little stint (*Tringa minuta*).

Temminck's stint (<i>Tringa Temminckii</i>).	Arctic tern (<i>Sterna arctica</i>).
Spotted crane (<i>Crex Porzana</i>).	Lesser tern (<i>Sterna minuta</i>).
Gray phalarope (<i>Phalaropus lobatus</i>).	Black tern (<i>Sterna nigra</i>).
Garganey duck (<i>Anas querquedula</i>).	Black-headed gull (<i>Larus ridibundus</i>).
Great crested grebe (<i>Podiceps cristatus</i>).	Kittiwake (<i>Larus Rissa</i>).
Red-necked grebe (<i>Podiceps rubricollis</i>).	Common gull (<i>Larus canus</i>).
Selavonian grebe (<i>Podiceps cornutus</i>).	Iceland gull (<i>Larus Icelandicus</i>).
Eared grebe (<i>Podiceps auritus</i>).	Lesser black-backed gull (<i>Larus fuscus</i>).
Common guillemot (<i>Uria Troile</i>).	Herring gull (<i>Larus argentatus</i>).
Little auk (<i>Mergulus Alle</i>).	Great black-backed gull (<i>Larus marinus</i>).
Puffin (<i>Fratercula arctica</i>).	Pomarine skua (<i>Lestris Pomarinus</i>).
Common cormorant (<i>Phalacrocorax carbo</i>).	Richardson's skua (<i>Lestris Richardsonii</i>).
Green cormorant (<i>Phalacrocorax cristatus</i>).	Fulmar petrel (<i>Procellaria glacialis</i>).
Gannet (<i>Sula Bassana</i>).	Manx shearwater (<i>Puffinus Anglorum</i>).
Sandwich tern (<i>Sterna Boysii</i>).	Fork-tailed petrel (<i>Thalassidroma Leachii</i>).
Roseate tern (<i>Sterna Dougalli</i>).	Storm petrel (<i>Thalassidroma pelagica</i>).
Common tern (<i>Sterna Hirundo</i>).	

Golden Eagle (*Aquila (Chrysaëtos)*). In Dr. Lamb's MSS. there is a notice of a golden eagle having been killed near Shottisbrook, in Berkshire, in the year 1794.

White-tailed Eagle (*Haliaëtos albicilla*). A bird of this species was shot on the Wantage Downs, Berkshire, in January, 1793.—*Dr. T.* Another occurred a few years ago near Henley-on-Thames, in this county; and a third was caught in a trap near the Chequers Court, Buckinghamshire, the seat of Sir Robert Frankland Russell, in 1846. The notice of the capture of the last-mentioned specimen was communicated by Mr. Willoughby Beauchamp, of Monk's Risborough, Buckinghamshire, from whom we have received much useful information respecting the birds of that neighbourhood.

Osprey (*Pandion Haliaëtos*). Within the last few years three specimens of the osprey have been killed near Oxford: one of these was shot in Nuneham Park, and is now in the possession of Mr. Harcourt. Dr. Tomkins also mentions two instances of its occurrence in Berkshire; once at Donnington, and subsequently at Pangbourne, in January, 1810.

Gyr Falcon (*Falco Islandicus*). On Sunday, the 10th of October, 1847, near Tetsworth, in this county, we observed a large bird sitting in a field adjoining the turnpike road: upon a nearer approach it proved to be a very fine gyr falcon, in the act of devouring a wood pigeon. He was in no way disconcerted by our attention to him, but finished his meal, and then flew up into a small tree, where he cleaned his beak and talons with the utmost composure. We had been watching him for several minutes at the trifling distance of sixty-five

paces, and had enjoyed every opportunity of seeing him to advantage : he was in very fine condition, apparently in the plumage of the second or third year. Unless he was much pressed by hunger, it would be difficult to account for his tameness on this occasion ; for within a few days we again met with him near the same spot, but he took good care to keep beyond the range of our guns. A specimen, also in the immature plumage, was shot a few years since near Henley-on-Thames.—K.

Red-footed Falcon (*Falco rufipes*). In the 'Zoologist' (Zool. 78) there is a notice of a female of this species having been struck down by a raven in Littlecote Park, near Hungerford, Berkshire. The above fact was communicated by our highly talented friend, Mr. Frederick Holme, of Corpus Christi College, Oxford. The bird itself was in his possession, and we have often heard him recount the singular story of its capture.

Peregrine Falcon (*Falco peregrinus*). Is not unfrequently met with in this part of the kingdom : we have ourselves shot them near this place, and often been surprised at the regularity with which—though frequently disturbed—they will return to the same spot to roost for several weeks together. Some years ago we observed a flock of tame pigeons hastening home at a very rapid pace from a feeding excursion, and flying, at that time, not more than one yard from the ground. They had just cleared the last fence, and were within a hundred and fifty yards of the dove-house, when a peregrine stooped with fearful velocity among them : having missed its quarry it rose again almost perpendicularly, and with undiminished speed, and again stooped before the pigeons could gain their retreat : it was this time also unsuccessful, but we can never forget the amazing power of wing which it exerted during the attack. We once saw a large female peregrine gallantly defending the remains of a partridge against the combined attack of two carrion crows.

Kite (*Milvus vulgaris*). A few years ago the kite was so common in Oxfordshire that occasionally two or more might be seen at the same time about its favorite haunts. It has now become very scarce.

Common Buzzard (*Buteo vulgaris*). Occasionally killed in this neighbourhood.

Rough-legged Buzzard (*Buteo Lagopus*). A pair of this fine species was in the habit of frequenting our neighbourhood for many weeks in the winter of 1825, attracted, it was thought, by the snipes, which abound at that season in some marshy ground near the village. Over this spot the buzzards might often be seen, generally soaring in

the air at a considerable elevation. Although diligently sought after, their extreme caution for a long time saved them: at last the female, a very large and handsome specimen, was caught in a trap in Middleton Park, and kindly presented to us by the Earl of Jersey. Also killed near Oxford in 1840.—*G.*

Honey Buzzard (*Pernis apivorus*). In the month of November, 1841, a honey buzzard was taken in a very extraordinary manner near Oxford. It had forced its head into a hole in the ground, probably in search of a wasp's nest, and becoming by some means entangled, was captured by a countryman before it could extricate itself. It was afterwards carried into the town, and sold to Mr. J. Forrest. Besides the foregoing, there have been other instances of its occurrence in this county, one of which has been already recorded in the 'Zoologist,' (Zool. 2297).

Marsh Harrier (*Circus rufus*). This handsome bird is often seen, and occasionally killed in our neighbourhood. A large female was once brought to us alive, which had been slightly wounded in the wing; it lived in the garden four or five years, and during that period did not exhibit any alteration in the colour of its plumage.

Hen Harrier (*Circus cyaneus*). The male birds of this species are somewhat rare; the females are more frequently met with.

Montagu's Harrier (*Circus cineraceus*). A male, in the plumage of the first year, was shot on Otmoor, in October, 1846.—*K.* Another, the same plumage, near Thame.—*G.* Also met with near Bicester, (Zool. 2297), and in the neighbourhood of Oxford, in January, 1849.

Eagle Owl (*Bubo maximus*). A fine male specimen of this rare bird was shot near Oxford in the winter of 1833. It was purchased by Mr. P. Forrest, of that town, in whose shop we saw it in the flesh. In the autumn of 1843, while travelling on the Great Western Railway, I observed a very large bird start from an embankment near Goring, in this county, and alight on a willow-tree close to the line; as soon as it had settled, it turned its head round, and disclosed to my astonishment the features of an eagle owl. The bird at that time was not more than fifty yards distant, so that even if I had not previously noticed its colour, shortness of tail, and general appearance while on the wing, I could hardly have been mistaken as to its identity.—*A. M.*

Scops Eared-Owl (*Scops Aldrovandi*). A bird of this species was shot by a farmer on the borders of Buckinghamshire, near Brill, in the spring of 1833, and taken to Mr. Forrest, from whom we shortly after received information of its occurrence.

Dartford Warbler (*Melizophilus provincialis*). In June, 1834, a pair of these birds were killed near Stow Wood, in the parish of Beckley, in this county, by Mr. Burney, of Exeter College: on the same occasion he observed several other specimens, and also found a nest with eggs belonging to the species. This is the only instance which has come to our knowledge of the capture of the Dartford warbler in this neighbourhood. Although we have repeatedly searched the locality in which they were seen by Mr. Burney, we have not hitherto been successful in finding any.

Bearded Titmouse (*Calamophilus biarmicus*). A specimen of this bird was shot near Oxford some years ago, and preserved by Mr. Wheeler, of that place.—*R.* It has also been met with on the banks of the river Kennet, in Berkshire.—*Dr. T.*

Bohemian Waxwing (*Bombycilla garrula*). This beautiful species has several times been killed in this neighbourhood. A specimen in our collection was shot in Kirtlington Park, near this village.

Wood Lark (*Alauda arborea*). This appears to be a very local species, the only place in this county where we have seen it being on the Chiltern Hills, near Stokenchurch. We have placed it in this class, as we have not been able to learn whether it resides here throughout the year, and our own observations certainly incline us to believe that it only occasionally visits that neighbourhood, being found at uncertain periods in small flocks of five or six together.

Cirl Bunting (*Emberiza Cirlus*). A few specimens of this bird have been brought from the neighbourhood of Oxford to Mr. Forrey, for preservation; but as it is now some years since he left that place, we are unable to give the precise dates of their capture. The same cause has in other instances also prevented our assigning the exact date of the occurrence of other birds enumerated in this list: for the most part, however, we are well assured of the authenticity of the facts, having ourselves examined many of the specimens while fresh.

Common Crossbill (*Loxia curvirostra*). On the 19th of July, 1838, a small flock of crossbills came to this village, and remained here until the middle of the following December. During their stay in the neighbourhood they were often in our garden, diligently examining the cones of the spruce fir. At all times their loud and musical whistle gave immediate notice of their approach, and, as they never became at all shy, the whole party might easily have been destroyed. The plumage of the young birds, when they first appeared, was of a dingy green colour, speckled throughout, much like the common woodpecker of the same age; the old males at that time exhibited

their gayest tints of red and yellow: one of these last, which was killed on the 10th of December, shortly before their departure, had, however, assumed another dress; a wide dark stripe passed from the bill on each side of the eye, and extended for some distance down the neck; there were also a few irregular dusky marks on the back, and the red ground-colour was of a very different shade.

Rose-coloured Pastor (*Pastor roseus*). A fine specimen of this beautiful bird was shot near Oxford in the spring of 1837, and preserved in the collection of Mr. Kirtland. Another was also killed in the same neighbourhood in the month of February, in the following year.—*K.*

Raven (*Corvus Corax*). The raven is now seldom seen in this county. A few years ago five passed over this place in company, and single specimens are still occasionally met with. In 1834 four young birds were taken from a nest near Oxford.

Hooded Crow (*Corvus Cornix*). Very seldom visits this part of the kingdom.

Hoopoe (*Upupa Epops*). A specimen of this beautiful bird was shot near Ensham, in this county, in 1840, and is now in the collection of Mr. Kirtland. In the spring of 1790 four hoopoes were killed between Wallingford and Reading, in Berkshire.—*Dr. T.*

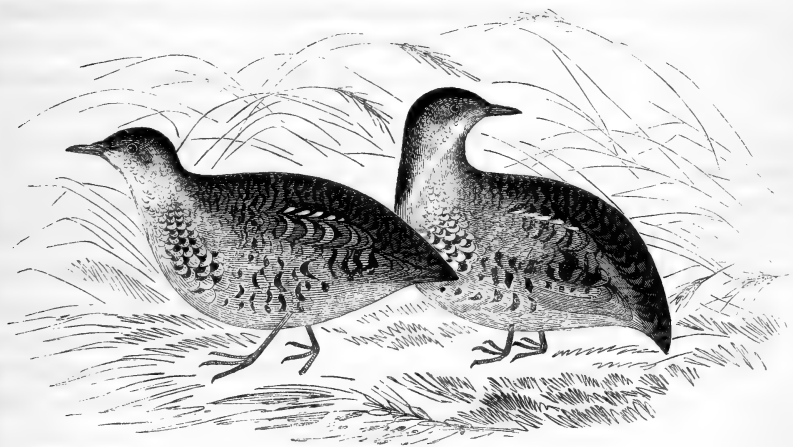
Rock Dove (*Columba livia*). Sometimes seen in this neighbourhood during the autumn, but it is a very uncertain visitor. Also found in Berkshire.—*Dr. T.*

Black Grouse (*Tetrao Tetrix*). In October, 1836, a gray hen was shot near Forest-hill, in this county. This is the only instance which has come to our knowledge of the black grouse having been found in Oxfordshire, and it is not improbable that the bird in question might have escaped from some aviary, although its plumage presented no appearance which would lead to such a conclusion.

Red-legged Partridge (*Perdix rubra*). In 1835, a pair of red-legged partridges were killed on the Chiltern Hills, near Stokenchurch, in this county; and on the 21st of September, 1848, a covey of six were found in the same locality by Mr. Willoughby Beauchamp. It has also been met with in Berkshire.—*Dr. T.*

Andalusian Hemipode (*Turnix Andalusica*). We have adopted the name of *Turnix Andalusica*, in preference to *Hemipodius tachydromus*, usually given to this species, on the advice of a distinguished ornithologist, whose opinion we will take the liberty of quoting in his own words.—“The generic name of *Turnix* must be used instead of *Hemipodius*, the former dating from Bonnaterre, in the ‘Encyclo-

pédie Méthodique,' 1790, the latter from Temminck's 'Histoire des Pigeons et Gallinaces,' 1815. But the right *specific* name is not so clear; the oldest is 'sylvaticus,' of Desfontaines, in 'Mémoires de l'Académie des Sciences,' 1787, p. 500. But in extreme cases, and where a name may propagate important errors, it is allowable to cancel the oldest name in favour of the next in point of date. Now 'sylvaticus' certainly gives a wrong impression of this desert bird, so I suppose we may take 'Andalusicus' of Gmelin, 1789, and call the bird 'Turnix Andalusica.'" The only specimens of this rare and interesting species hitherto found in Great Britain were killed by Mr. R. Webb, gamekeeper to Miss Pennyston, of Cornwell, near Chipping Norton, in this county. On the 29th of October, 1844, he shot



Andalusian Hemipodes (*Turnix Andalusica*).

the first of these, a male, in a field of standing barley, and took it to Mr. Goatley, of Chipping Norton, by whom it was stuffed. A few days after, near the same spot, he met with a second, probably the female: this he also killed, but unfortunately it was so mutilated as to render it quite unfit for preservation. The former specimen is now in the collection of the Rev. H. Roundell, of Fringford, through whose kindness we are enabled to offer the accompanying portrait of the bird.

Great Bustard (*Otis tarda*). "This bird was occasionally met with on the Lamborn downs, in Berkshire, more particularly in 1802, before they were enclosed; since that time it has not been seen."—*Dr. T.*

Little Bustard (*Otis Tetrax*). A very fine female of this species

was shot in November, 1835, by Mr. Aldworth, a farmer, at Garsington, in this county, in whose possession it still remains. Another was "said to have been killed on Denton Common, in December, 1830."
—R.

Common Crane (*Grus cinerea*). In the spring of 1829 a very fine female crane was shot at Chimney Ford, near Standlake, in this county.

Purple Heron (*Ardea purpurea*). A specimen of this rare bird was killed on Otmoor, in this county, in the winter of 1837, and is at present in the collection of Mr. Rodd, of Penzance. Another "was shot some years ago near Witney."—G.

Great White Heron (*Ardea alba*). "Killed on the banks of the Isis, not far from Oxford, in September, 1833."—R.

Night Heron (*Nycticorax Europæus*). The night heron has been met with several times in this neighbourhood. In 1833 a specimen was shot near Wooton, and is now in the Ashmolean Museum. A second, in our own collection, was killed near Standlake, in the spring of 1835; and, many years ago, a specimen in the immature plumage was shot near Thame.

Common Bittern (*Botaurus stellaris*). In the bittern we have another instance of the gradual disappearance of a race once well known in this part of the world: although as yet a straggler may here and there be met with, such events become of rarer occurrence every year, and the time is perhaps not far distant when they will altogether cease. In Berkshire Dr. Tomkins informs us that "the bittern was formerly common between Newbury and Reading." In the county of Oxford, it has been killed at Fringford by Mr. Roundell, and by others near Stanton Harcourt, and on Otmoor. In this parish (Weston-on-the-Green), as two boys were, many years ago, on their way to work, early in the morning, near a tract of marshy ground called the Peat-pits, they found a bittern which had been winged on the previous evening by the gamekeeper: highly delighted, they at once attempted to secure the prize, but met with so warm a reception that they were soon fain to retreat to a neighbouring hedge, where they armed themselves with sticks, and again renewed the attack: at length, after a spirited resistance, the bittern fell under the repeated blows of his assailants, and was borne off in triumph to the village. In this same spot, on the 9th of January, in the present year (1849), we were ourselves fortunate enough to capture a fine male, in a manner not less remarkable than the foregoing. We were snipe-shooting, and having met with good sport, and, as we supposed, thoroughly beaten the

ground, were about to leave the place, when our attention was suddenly arrested by an exclamation from the hindmost of the party, Mr. Bertie Matthews: on looking back we observed him advancing cautiously towards a small tuft of sedge, into which he soon thrust his hand, and, to our surprise, drew from thence—firmly grasped by the neck—a very large bittern. A few days after this a female was killed in the adjoining parish of Bletchington, and given to us by the Hon. Charles Annesley. The stomachs of both these birds were filled with young pike, which seem to be their favourite food: in the male we found six of these fish, one measuring nine inches in length, the others from three to six inches: there were in the stomach of this bird, besides the pike, a bull-head, a minnow and a water-eft. The stomach of the female contained three pike, but no other fish.

Little Bittern (*Botaurus minutus*). A specimen of the little bittern, a female, was shot on Otmoor, in 1827. It has also been met with on the river Cherwell, and in 1847 a fine specimen was killed near Bampton.

White Stork (*Ciconia alba*). In the spring of 1828 four storks were seen on Otmoor: one of the party was killed, and taken to Mr. J. Forrest, of Oxford; the other three effected their escape.

Glossy Ibis (*Ibis falcinellus*). In the collection of the late Dr. Lamb, of Newbury, now in the possession of Dr. Tomkins, there is a specimen of this rare bird, which was killed near Reading, in 1793,—perhaps one of the first recorded instances of its capture in Great Britain. The following notice of its occurrence is copied from the MSS. of Dr. Lamb, referred to in the beginning of this list: “A pair of these birds were seen flying over the Thames, near Reading, Berkshire, in September, 1793. One of them, the male, was shot, and is now in my collection.”

Curlew (*Numenius arquatus*). Not an uncommon visitor on Otmoor, and in other parts of this county.

Whimbrel (*Numenius phaeopus*). Like its congener, the whimbrel has often been killed in this neighbourhood. “Near Sunning (Berks), January, 1794.”—*Dr. T.*

Avocet (*Recurvirostra Avocetta*). “Six of these birds were killed whilst swimming on a pond near Sunning, in April, 1794.” This, the only instance of the occurrence of the avocet in this part of the kingdom which we have met with, is again transcribed from the MSS. of Dr. Lamb.

Black-winged Stilt (*Himantopus melanopterus*). A specimen of this rare and very curious bird was killed at Shipley, near Henley, in

this county: it was for some time in the possession of Mr. Kirtland, who obtained it soon after its capture, but is at present in the collection of the Rev. H. Roundell.

Black-tailed Godwit (*Limosa melanura*). Two or three specimens of this bird have been killed in this neighbourhood. "A fine specimen in the summer plumage was shot near Fringford, a few years ago."—R. "Near Reading, 1802."—Dr. T.

Bar-tailed Godwit (*Limosa rufa*). Is often seen in this part of the kingdom.

Little Stint (*Tringa minuta*). This species and the following—Temminck's stint—might perhaps be more properly classed as Passing Visitors. The instances of their occurrence in this neighbourhood have, as far as our memory serves us, always happened in the spring or autumn; but as we unfortunately omitted to make any note of their appearance at the time, and also for the reasons mentioned above in our remarks on the curlew, we have now no means of ascertaining the fact. Several birds of the present species have been killed near Oxford: of these a pair were shot by the late Mr. Pinfold, of Beaumont Street, in the spring of 1832.

Temminck's Stint (*Tringa Temminckii*). A pair of these elegant little birds were shot on Port Meadow, near Oxford, August 24th, 1848. They have also been found in the same neighbourhood, though rarely, on other occasions.

Spotted Crake (*Crex Porzana*). The spotted crake is sometimes found in this county during the latter part of the autumn. Like the landrail, this species is flushed with great difficulty, and will use every artifice to avoid rising on the wing.

Gray Phalarope (*Phalaropus lobatus*). The gray phalarope is another species which we are strongly inclined to consider a Passing Visitor; but, like the stints, their scarceness and the great uncertainty of their appearance render this point so difficult to determine, that we have allowed the present, as well as the two former species, to retain the position which they now occupy. A specimen of this bird was once brought to Mr. Forrest, from the neighbourhood of Oxford, which had partially attained its summer dress. In the winter plumage it is more frequent. A fine specimen, now in our collection, was shot by a farmer in this village, in September, 1823. "Near Shinfield, Berkshire, March, 1794."—Dr. T.

Garganey Duck (*Anas querquedula*). Sometimes, but rarely, killed in this neighbourhood during the winter. In August, 1830, three birds of this species alighted on some water at Otmoor, and

were all killed by a farmer, who brought them to us immediately after. All three appeared to be young birds.

A. & H. MATTHEWS.

(To be continued).

The Birds of Melbourne. By J. J. BRIGGS, Esq.

(Continued from page 2565).

Wren (*Sylvia Troglodytes*). In May, 1844, a pair of wrens built a nest several inches within a crevice of a new unmortared stone wall. Straws and moss composed it, but the shape was like that which a redbreast would have built in a similar situation, not having a dome or cover at the top.

Nuthatch (*Sitta Europæa*).

Common Cuckoo (*Cuculus canorus*). I believe that although confiding her young to the care of other birds, the cuckoo does not entirely forget them. I am strengthened in this opinion by a fact which fell under my notice in June, 1849. As I was walking over a particular part of this parish, with a dog, I was struck with the remarkable actions of a cuckoo. It came flying about me within a hundred yards, seeming agitated and alarmed, and occasionally struck down at the dog in the same manner as the lapwing does. It immediately occurred to me that the bird had young near, and that these actions were the result of maternal solicitude. I examined the neighbouring hedgerows in order to find the nest, but without avail: the next day a neighbouring farmer told me that he had something to show me, which proved to be a young cuckoo in the nest of a hedgesparrow, and the place where the nest was situated was but a very short distance from the spot where the old cuckoo had attracted my notice in the manner described.

Common Kingfisher (*Alcedo Ispida*). They never quit our pools and waters on the approach of winter, as they are said to do in some inland situations, for I have seen them darting by me in the hardest winters, even when frosts have set in and snows lay deep upon the ground: their beautiful plumage renders them one of the most agreeable birds that linger with us through that dreary season. On the 10th of December, 1846, I observed a kingfisher, and on the previous night

the thermometer stood at 10° . One very cold day, in November, I was looking at a fisherman by the side of the Trent, when a kingfisher darted from the bank where I stood, and within twenty yards of me dropped suddenly on the water, and in a most dexterous manner seized a small fish and carried it to the opposite bank, where it was speedily gulped down. This curious achievement seemed to startle my quiet piscatory friend "from his propriety," who remarked "that he thought the bird the best fisher of the two," and I was of the same opinion, as the worthy man had been five hours at the river-side and only had "one glorious nibble."

Chimney Swallow (*Hirundo rustica*). On October 17th, 1843, a pair of swallows were flying about in a snow-shower. The fact of this bird building in chimneys appears to be in some localities an extraordinary circumstance, whilst in others it is accounted equally curious for it to place its nest in an outhouse or on the top of a rafter. With us it chooses both situations, and occasionally others very remarkable. I have seen it occupy the corner of the porch over a cottage door, not many feet from the ground, and also place its nest against the ceiling of a green-house, partly supported by the glass and partly by the wall, and the material adhering equally firm to both objects. This situation was the more extraordinary, inasmuch as the little architects, on each visit to their habitation, had to enter through a broken pane of glass and push aside a vine-leaf which blocked up the entrance, and it was equally curious that through the nest ran a bell-wire leading to an adjoining room, which, although often pulled by the family residing in the house, did not injure a fragment of the nest nor incommode its inmates. For many years a pair of swallows occupied a nest which they had built on the wall of a low garret, which was used nightly as a sleeping-room: the nest was about four feet from the floor,—so low indeed from the floor that a child could easily look into it. The swallow completes her nest (to which she brings about sixteen ounces of damp mud) in about twelve days. A swallow, in two instances, made a nest by plastering up a hole in the wall of a barn, leaving a small entrance at one corner: these nests were occupied many years. A pair which I watched brought food to the young seventy-two times in an hour. A few summers ago a very cold day occurred, and the swallows hereabouts gathered together, as if for departure: after flying about for some time they settled on the perpendicular wall of a house, at the back of a chimney, and huddled together in lumps, clustering just like bees: as they clung here and there to the building they very much resembled old clouts or patches of dark mud. Previously to

their departure, swallows are very fond of collecting together on the pebbly margin of the Trent,—perhaps from its resemblance to the sea coast, their starting-point for emigration. It is very amusing to watch them on these occasions spreading out their wings and preening them, as if preparing for their voyage.

Martin (*Hirundo urbica*). After martins have made their appearance here in spring, they sometimes again disappear for weeks, and again show themselves and then remain through the summer. In 1844 I find that these birds were visible on April 23rd and 24th, and from that period not one was observable until May 14th, when a single individual arrived. Are our first visitants only voyagers to some more northern locality, and just seen on their passage? or are they birds which—having once appeared, and not finding our climate sufficiently mild—again retrace their passage to a summer clime? Martins haunt the Trent on their first arrival, and in a fortnight or three weeks commence building their first nest, which occurs about May 25th. The young leave the nest about August 2nd. Second nest is begun August 11th. Second brood quit the nest September 29th. In the year 1846 a pair of house martins built their nest beneath one of the windows of our house, and had just made it ready for the reception of eggs, when two sparrows took possession of it, and defied all the efforts of the rightful owners to force them out. During the absence of the sparrows one day the swallows blocked up the entrance, and finally built another nest over it, and so excluded the usurpers. In 1836 I was an eye-witness to an interesting circumstance, which illustrated the natural affection of this bird. During the third week in October a pair of martins built a nest underneath the battlements of one of the public buildings in Derby, in a warm and sheltered situation. At the end of the month the main body of martins departed, leaving this pair behind, which continued in the neighbourhood until the extraordinary late period of November 27th, when the young, being fledged, left the nest, and they and their parents disappeared together: this appeared to me extraordinary, as I have known more than one instance in which the old birds have forsaken their offspring to obey the migratory impulse: sometimes, if a nest is examined immediately after the departure of a pair of birds in the autumn, the young will be found half fledged, and evidently having died from starvation, occasioned by the parents abandoning them.

Sand Martin (*Hirundo riparia*). A colony of these birds takes up its residence annually on a picturesque bank called Weston Cliff, overlooking the Trent, and beautiful is the sight to see hundreds of

them constantly winging their spirit-like flight over the bosom of the waters, and occasionally dipping into the surface to drink or capture an aquatic insect. I find by my journal that they usually commence excavating their holes about three weeks or a month after their arrival, and that they can mine two or three inches in a day. A person who worked at the bank well described the earnest manner with which they labour, in these words,—“they do fettle away;” and “fettle away” they must, for I have known them complete a cavity of four feet in sixteen days, which is somewhere about the time that the common martin requires to erect her nest of mud. The weight of sand mined in a day (which may easily be noted, by being of a deeper colour than that which has laid to be dried in the sun) is from sixteen to twenty ounces. Whilst holding a sand martin in my hand, I have often been struck with the beak of this bird, which bears a striking resemblance to the point of a collier’s pickaxe, being hard, strong and finely pointed, and admirably adapted for the purpose for which it is designed. I have seen holes bored in layers of gravel which intersect the bank, during the working of which the birds had removed pebbles upwards of two ounces in weight.

Swift (*Hirundo Apus*). A pair of swifts has inhabited a particular hole in a cottage for more than twenty summers, during which period the nest has contained two, three, and *four* eggs.

Nightjar (*Caprimulgus Europæus*). In 1844 two individuals were killed near Donnington Park, whilst hawking for insects at *mid-day*. The spot where they were found was by the side of a large wood, the birds probably having been tempted from their hiding-places by the resemblance of the gloom to the dusk of the evening. They are not found after September.

Ring Dove (*Columba palumbus*). Our woods and dark plantations of fir trees are inhabited by large flocks of the ring dove, or, as it is here called, the ‘wood pigeon,’ which spread themselves over the adjoining country, and commit serious damage upon most kinds of agricultural produce. Between seed-time and harvest they may be seen in small parties, half buried in the long grass of pastures, foraging for food: at this time they subsist principally upon the panicles of wild grasses. About July, when the wheat is fully in ear and the corn has become milky, these birds are terribly destructive: they come in parties, and, settling down upon such parts of the corn as are “laid” by wind and rain, pick out quantities of grain. I have frequently cut open the crops of such birds as have been shot from wheat-fields, and have taken out half a pint of young corn. In winter they repair to

field-cabbages, and, if not scared away, attack the heart and softer leaves. In spring they come in flocks to clover-fields, and pick out the "eyes" or central leaves of the plants. Throwing aside their pil-laging propensities, however, these birds are beautiful and interesting denizens of woodland districts; and I know of no sounds more soothing than the low, sweet, plaintive notes of a number of males, who are serenading their mates in some fine old wood, during the tranquil calm of a mild summer's evening. During the commencement of corn-harvest numbers are occasionally taken in the following manner. As before stated they frequent corn-fields, and a person wishing to shoot them repairs to such fields. Having cut from an oak or elm tree several broad leafy branches, he fixes them perpendicularly in the ground, forming a sufficient covering to screen himself from observation, and there, with gun in hand, waits attentively until the arrival of the birds, and fires at them as they settle on the corn or fly overhead. By this method a person has secured forty birds at one "sitting." There is another method, which, in addition to killing considerable numbers, also affords excellent sport. In winter they keep together in large flocks, oftentimes consisting of hundreds, feeding in company during the day and roosting in large woods at night. Just before darkness comes on, a person repairs (gun in hand) to the place where they roost, and, stationing himself with his back to the bole of a tree, fires upon them as they settle down upon the branches overhead. The report of the gun alarms them for a season, when the whole flock rises from the wood: after wheeling about for a few minutes they again alight, oftentimes before sufficient time is given to reload the gun. In this manner several pairs will be taken by a tolerably good shot in an evening, one of which—cooked after the fashion of a partridge or wild duck—will prove anything but an unpalatable dish to a hungry sportsman. A good bird will weigh twelve ounces.

Stock Dove (*Columba ænas*).

Turtle Dove (*Columba Turtur*). The only instance of this bird being seen here occurred on the 20th of June, 1849, when a beautiful individual came, and staid some days in a turnip-field: it appeared to subsist upon turnip-seed which had been sown in the drills.

Common Pheasant (*Phasianus Colchicus*). The ordinary weight of a cock pheasant, when left entirely to his own resources in procuring food, is usually about $2\frac{1}{2}$ lbs.; but I have weighed individuals which had been shot from the Donnington covers, where they are well-preserved and highly fed, which exceeded 4 lbs.: they were more plump and fat than barn-door fowls, and exceedingly rich in plumage. That

the pheasant sometimes becomes exceedingly pugnacious in disposition the following circumstances seems to prove. Not far from a large wood was a farm-house at which game fowls were kept: these, instead of roosting in an outhouse, betook themselves to an oak tree on the borders of the wood: one morning the owner perceived the cock—a fine young bird—lying dead beneath the branches, considerably beaten, his plumage ruffled and his head besmeared with blood: he procured another but an older bird of the same breed, which shared the same fate: a third was procured,—it died also: the person, vexed at his repeated losses, bought a fourth,—a large strong bird, high of mettle and stout of limb,—and, having armed him with a pair of sharp steel spurs, turned him adrift: he went to roost in the evening, and came down in the morning alive and well; but underneath the tree lay the vanquished foe,—a large, well-fed, old cock pheasant,—which had no doubt made his appearance in the night and met with a bolder antagonist than he anticipated, and fell a victim to his imprudence: the pheasant perhaps came with the intention of pairing with one of the fowls, or it might be only joined the party for the sake of society. During the earlier part of the winter pheasants roost in open trees, such as the oak, elm, &c., but when frosts set in betake themselves to hollies, laurels or spruce firs, and do not leave them again that winter.

Partridge (*Perdix cinerea*). It has always been to me a matter of surprise that country gentlemen have not paid more attention to increasing the partridges on their estates, and less to the propagating of hares, rabbits and pheasants. Rabbits I consider merely (in the same light as all animals that burrow in the ground) *vermin*, and unworthy to rank as game. Hares are little better. The partridge, on the contrary, affords delightful shooting, is an interesting adjunct to an estate, and one to which no sensible tenant objects. I have paid close attention to the habits of this bird through many years, and I am quite sure that he is most serviceable to agriculture, and more especially to lands occasionally under green cropping. For nine months in the year the partridge lives almost entirely on insects and slugs, amongst which the wireworm, ants and their eggs, Aphides, and various other enemies to the farmer, are sought after by him with avidity: for the remaining three months he feeds occasionally upon corn, but in very small quantities. The partridge, however, picks up a scanty maintenance on stubble, after the ears have been picked up by the gleaners, and must then be said to be doing good service. During the first year of their existence, partridges, I believe, feed entirely on insects, for through the months of May, June and July, soft insects

are more suited to their stomachs than corn; and before they arrive at such an advanced age as to be able to feed on corn, August and September comes in, and it is removed by the harvest; then for the remaining months of the year they are obliged to exist on insect food. The partridge is certainly a very amusing and interesting bird, and my journals contain many notes and records of its cunning and ingenuity. In 1840 I surprised a female on her nest, and she had laid only four eggs: being aware that she was discovered, she covered them very carefully over with dead hedge leaves and dried bents, uncovering them every morning to deposit an additional egg, and then concealing them again. So artfully were they hidden from observation, that an eye inexperienced in such matters could not possibly have ascertained the situation of the nest, which looked precisely like an unused one of a former year. February 18, 1844: I was riding along a field and came suddenly upon a partridge: it did not rise with a whirring noise and wing its way out of danger, but ran for a few feet on the turf, which was very bare, and squatted down suddenly, lying as close as a hare on her seat: its head touched the grass, and its neck was stretched out, as if it were a dead bird: I rode up to it quite close, but it moved not a feather, and I could scarcely make it escape although I cracked my whip: it was not disabled, for when it did rise it flew strong and well, and my impression was that it was feigning to be a dead bird. I was walking down a field on August 2nd, 1844, when I surprised a covey of young partridges: one of the parent birds, in a most bold and determined way, would not quit the spot for some time, and actually made an attack at my feet. December 10, 1846: when walking along a road, I was not a little surprised at a partridge coming over the hedge in a very hurried manner, and making a swerve towards me, as if for protection; directly afterwards, and following closely in its wake, came a kestrel, very eager in pursuit; and I was much astonished at the peculiar familiarity of the partridge, and also to find a kestrel attacking so large a bird: woods and hedges prevented my ascertaining whether the partridge fell a victim to his pursuer. The partridge pairs earlier in mild seasons and later in severe ones, but generally from February 1st to 14th. Some few birds never pair at all, which I suppose to be males for whom there exists a scarcity of females. The greatest number of eggs I ever heard of being found in one nest was twenty-one; yet on August 2nd, 1844, I put up from a field of wheat a covey of twenty-five young partridges, which to all appearance had been hatched together, and were alike in size. Little notice, however, can be taken of the number of a covey

after it is hatched, as in particular seasons the young of one, two, and even three pairs of birds, will all "pack" together. Upon reference to my journal, I find that about August 15th, 1844, owing to the continued dry season, partridges multiplied to an unusual degree. Double coveys, numbering from twenty to twenty-five birds, were of frequent occurrence. Some people stated that they saw as many as forty in one covey, and a credible person informed me that he had counted thirty. When these large parties occur, two hen birds must have incubated eggs in the same field, very nearly together, and the young have intermixed. In such a case, one pair of old birds only generally take care of the two broods, the other entirely deserting them. When coveys "pack" together later in the season, it is generally owing to a great scarcity of turnips and green cropping, or lack of other covert. Partridges "jug" or roost for the night nestled close on the ground, in a cluster, keeping their heads outwards and tails to the centre. I have more than once surprised a covey in this position, and upon being alarmed they flew away at all points of the compass. Some coveys occupy the same spot, if not disturbed, for a fortnight or more, and others change their quarters every night. I once noticed a pair almost always about the pebbly beds of the Trent, very busily occupied in turning over the stones,—I suppose for the aquatic insects: this spot was a favourite one with them nearly a whole summer.

Red-legged Partridge (*Perdix rufa*). A few years ago the late Marquis of Hastings caused some pairs to be turned into the coverts at Donnington Park. A pair, if not more, bred the first year, and reared their broods, but they gradually strayed further and further from the neighbourhood, and have now completely disappeared. A bird of this species was shot in a liberty about four miles distant, which was probably one of the party. It was found amongst turnips, and did not rise immediately like the common partridge, but footed away before the pointers to a considerable distance, and was very difficult to spring. The birds turned out at Donnington were bold and quarrelsome, driving individuals of the common species from their accustomed haunts, and seemed therefore by no means desirable denizens of shooting-grounds and copses.

Common Quail (*Perdix Coturnix*). In June, 1840, I heard the peculiar note of one in a potato-field, within a hundred yards of the town of Melbourne, and was surprised that it frequented a spot so near the homes of man. It was afterwards killed.

Golden Plover (*Charadrius pluvialis*). With the large autumnal flights of the common plover, which annually visit us, are occasionally

one or two birds of the golden plover, which apparently accompany them from their northern breeding-grounds. I have notes of observing them on February 22nd, 1845, September 10th, 1847, August 22nd, 1848. They do not, however, stay many days, but seem to fix upon this parish as a baiting-place, until they are inclined to pursue their journey further south. The margin of the Trent is their favourite spot, and whilst with us their manners are pretty and amusing. They have a very favourite habit of frequenting the shallows, where they may be seen running lightly along the shore, to pick up insects amongst the pebbles, and wading knee-deep in the river, occasionally upturning a stone for the food beneath. They are not very shy, and with care may be approached closely, and when disturbed merely flit to the opposite side or a few dozen yards lower down the same margin. In severe seasons they come to us in flocks of from twenty to thirty birds, and find sustenance in the meadow-grounds, which, being constantly overflowed, afford them a good supply.

Dotterel (*Charadrius morinellus*). A dotterel was killed during the last week in April, 1844, at Twyford, a village four miles distant from here, which no doubt was making its way for its breeding-grounds on hills of the Peak.

J. J. BRIGGS.

Melbourne.

(To be continued).

The Lake of Alligators in Scinde.—"This curious place is about eight miles from Currachee, and is well worth inspecting to all who are fond of the monstrous and grotesque. A moderate ride, through a sandy and sterile tract varied with a few patches of jungle, brings one to a grove of tamarind trees, hid in the bosom of which lie the grisly brood of monsters. Little would one ignorant of the locale suspect that under that green wood in that tiny pool, which an active leaper could half spring across, such hideous denizens are concealed. 'Here is the pool,' I said to my guide rather contemptuously, 'but where are the alligators?' At the same time, I was stalking on very boldly with head erect, and rather inclined to flout the whole affair, *naso adunco*. A sudden hoarse roar or bark, however, under my very feet, made me execute a pirouette in the air with extraordinary adroitness, and perhaps with more animation than grace. I had almost stepped on a young crocodilian imp, about three feet long, whose bite, small as he was, would have been the reverse of pleasant. Presently the genius of the place made his appearance in the shape of a wizard-looking old Fakeer, who, on my presenting him with a couple of rupees, produced his wand—in other words, a long pole, and then proceeded to 'call up his spirits.' On his shouting 'Ao! Ao!' 'Come! come!' two or three times, the water suddenly became alive with monsters. At least three score huge alligators, some of them fifteen feet in length, made their appearance, and came thronging to the shore. The whole scene

reminded me of fairy tales. The solitary wood, the pool with its strange inmates, the Fakeer's lonely hut on the hill side, the Fakeer himself, tall, swart, and gaunt, the robber-looking Belochee by my side, made up a fantastic picture. Strange, too, the control our showman displayed over his 'lions.' On his motioning with the pole they stopped (indeed, they had already arrived at a disagreeable propinquity), and on his calling out 'Baitho,' 'Sit down,' they lay flat on their stomachs, grinning horrible obedience with their open and expectant jaws. Some large pieces of flesh were thrown to them, to get which they struggled, writhed, and fought, and tore the flesh into shreds and gobbets. I was amused with the respect the smaller ones showed to their overgrown seniors. One fellow, about ten feet long, was walking up to the feeding-ground from the water, when he caught a glimpse of another much larger just behind him. It was odd to see the frightened look with which he sidled out of the way, evidently expecting to lose half a yard of his tail before he could effect his retreat. At a short distance (perhaps half a mile) from the first pool, I was shown another, in which the water was as warm as one could bear it for complete immersion, yet even here I saw some small alligators. The Fakeer told me these brutes were very numerous in the river, about fifteen or twenty miles to the west. The monarch of the place, an enormous alligator, to which the Fakeer had given the name of 'Mor Saheb,' 'My Lord Mor,' never obeyed the call to come out. As I walked round the pool I was shown where he lay, with his head above water, immoveable as a log, and for which I should have mistaken him but for his small savage eyes, which glittered so that they seemed to emit sparks. He was, the Fakeer said, very fierce and dangerous, and at least twenty feet in length.—'Dry Leaves from Young Egypt.'

Colias Edusa and *C. Hyale*.—My friend Mr. Engleheart found *Colias Edusa* very abundant, but could only find four specimens of *C. Hyale*, at Ventnor, this year. *Edusa* has also occurred in the New Forest and on Newmarket Heath, but I have not heard of *Hyale* having been taken at either of those places.—*Frederick Bond; Kingsbury, October 16, 1849.*

Colias Hyale near Brighton.—It may be worth mentioning that I have received from my brother a fine specimen of *Colias Hyale*, taken at Brighton, about the 13th of September last. A young friend of mine has also brought home three specimens of this insect from the same place, which he took in a meadow behind Kemp Town, near some clover-fields, between the 5th and 10th of September. *C. Edusa* was by no means uncommon.—*W. J. Wild; Herne Hill, October 5, 1849.*

Pure Starch discharged by the Larva of Cossus ligniperda.—Some young friends of mine having brought me a fine specimen of the larva of *Cossus ligniperda*, I was curious to know the nature of a milky fluid the insect threw up in the bottle in which it was confined. A portion dried upon a glass plate, being submitted to one of Ross's achromatics, was found to be pure starch, polarized light showing the black cross very beautifully in each grain. I had hitherto imagined that the larva of *Cossus* consumed the wood of the trees into which it bored: it appears, however, more nice, extracting the nutritious juices only. In this experiment I was struck with the amount and purity of the starch.—*J. B. Spencer; 11, Montpellier Row, Blackheath, October, 1849.*

Second Brood of Silkworms (Bombyx Mori).—In the early part of April last I had hatched some 250 or 300 silkworms: they were at first fed upon lettuce, and then, as usual, on the mulberry leaf, perfected their wonderful course of life, and left me in possession of about (upon rough estimate) 40,000 eggs: these were stowed in a closet, and left with the full expectation of their usual production next spring. Chance having led me to look at the eggs, I was astonished to find that *all* were in a forward state (on August 14th, 1849) for hatching, and indeed numbers were already hatched. I have at this moment some hundred or more of this second brood completing their cocoons: they have been fed upon the *mulberry entirely*, and have been subject to a disease which has killed many in a few hours.—*Wm. Mc'Pherson*; 3, *Grote's Place, Blackheath, October 8, 1849.*

Occurrence of Charæas Cespitis near Worthing.—In the early part of September a relation of mine captured—in Clapham Woods, about four miles from Worthing—a beautiful specimen of this insect, by beating it from hazel, in the middle of the day.—*H. Tompkins*; *School Hill, Lewes, Sussex, October, 1849.*

Correction of a previous Error, Zool. 2369 and 2530.—Your readers will think me like a newspaper writer, inventing a railway accident one day in order to contradict it the next. Did not I say (Zool. 2369) that the *Cleodora silacella*, *lucidella*, *falciformis* and *ochroleucella* of Mr. Stephens's cabinet were all *one* species? Turn to page 2530, and it there appears that I had recanted this opinion as far as regards the *falciformis* of Mr. Stephens's cabinet, which I admitted was distinct from his *silacella*; and now I have to recant it with regard to *lucidella*, which has been this summer taken in tolerable plenty by Mr. Shepherd, among rushes, at Hammersmith: it is abundantly distinct from *lappella* of Linneus (the *silacella* of Mr. Stephens's collection) and *paucipunctella* of Metzner (the *falciformis* of Mr. Stephens's collection): whether the *ochroleucella* will also turn out to be a distinct species remains to be seen.—*H. T. Stainton*; *Mountsfield, Lewisham, October 15, 1849.*

Notes on Honey Bees not always being prepared with a place to go to when Swarming.—Early in July, 1817, Mr. Charles Bowman, at that time gardener to the late Lord Melbourne, had a second swarm rose and settled in a close-clipped hedge, a short distance from the place where the stock stood. Here they continued fourteen days, during which time they had formed no combs. Mr. Bowman gave them to me, and I hived them, brought them home, and united them with one of my stocks in the evening. Next morning I found the queen dead on the stool near the hive. The circumstance of the bees remaining so long in that situation without commencing a comb is extraordinary; because had they been in a hive during the same time, combs would have been formed, honey collected, and brood coming forward. In June, 1815, in a small apiary in King's Newton, stood two stocks of bees, a few yards distant from each other. Early in the forenoon of the day on which the circumstance took place, one of them sent out a swarm, which settled about ten or fifteen yards from the spot. Immediately after they were settled, and before they could be hived, the other stock sent out a swarm, which, after making a short circular flight, entered into the hive from which the first swarm had risen: they continued there about a fortnight, when they again rose. In this case the spot could not have been previously chosen, as it was an occupied hive.—*John Green*; *Melbourne, Derbyshire, October, 1849.*

Curious fact in the Economy of the Honey Bee.—Careful and frequent observation of the interior proceedings of a colony of bees (a swarm of the present season, located in a unicomb hive), enables me to communicate a fact in the physiology of this insect

which has not (I believe) been referred to by previous observers; namely, that bees are enabled to secrete, when required for sealing brood comb, scales of yellow wax. It has generally been supposed that the yellow colour is owing to a varnish applied by the bees, and to the odour of the hive. We are aware that they do occasionally apply a varnish to newly-constructed comb; but we have repeatedly observed the protruding scales of wax, of the same yellow tinge as that of the sealing of the brood comb: they are of a softer nature and larger than the pure white scales required in the construction and sealing of the honey cells.—*George Fox; Duncombe Street, Kingsbrook, 8th mo. 31, 1849.*

Extraordinary produce of Honey.—Some beautiful boxes of honey have fallen to my share this season; one, perhaps, almost unprecedented, when we consider the weight of its contents, its purity, and the rapidity with which it was filled. The box was supered on its stock hive on the 4th of June, and taken in six weeks and three days, the weight of pure sealed comb being $68\frac{1}{2}$ lbs. (averaging more than $1\frac{1}{2}$ lb. per day). The stock hive itself remains *in situ*, exceedingly weighty. A collateral hive has given me two boxes, of 49 lbs. and 38 lbs. respectively; the stock hive also being left untouched and very heavy: neither of these colonies have been allowed to swarm.—*Id.*

Seasonal abundance or scarcity of the Common Wasp.—Some of the Hymenoptera (bees, *e. g.* wasps, ants, &c.) exhibit perhaps more of *mind*, if I may be allowed the expression, than almost any other insects. They live in societies, and these extremely well regulated; so much so as to afford a pattern to ourselves in many points, if we would condescend to be taught by such humble examples. I fancy we have much to learn yet about the natural history and economy of these creatures. However, I am not going either to moralize or to enlarge on subjects beyond my own knowlege: my purpose at present is a much more simple one. I merely wish to state a fact, in the hope that some one else may be able to account for it. It is, I believe, a commonly received opinion, and one that appears reasonable, that the large wasps which have hibernated, or survived the winter in a torpid state, and appear in the early spring, are breeders, each being the founder of a colony or nest for the ensuing summer; and accordingly we sometimes hear of rewards, of so much per dozen or score, being offered for all the wasps destroyed before—say the first of May or other early period, and this under the impression that the destruction of a spring wasp is in fact the destruction of a whole brood, which otherwise would have infested us in the summer; just in the same way, as if one were to destroy a pair of partridges in April or May, there would be one covey less for the sportsman in September. I have, however, found by experience, and, I believe, more than once recorded the fact (in the ‘*Magazine of Natural History*’), that “an abundant flight of spring wasps is no sure earnest of a corresponding summer flight,” but rather the contrary. I mean that if wasps are abundant in the spring they are scarce in the summer, and *vice versâ*, if they are scarce in the spring they are abundant in the summer. At any rate this often happens; and the remark has been signally exemplified in the present and preceding year. In the spring of 1848 wasps were unusually abundant: I used to kill several every morning, for many days in succession, about the end of April and early in May, in the greenhouse windows: some of my neighbours remarked their abundance as well as myself. In the summer of the same year wasps were remarkably scarce,—more so, I think, than I ever knew them to be. It was a great gooseberry year with us, of which fruit, I need hardly say, these insects are exceedingly fond.

But during the entire gooseberry season the bushes were quite free from wasps, and I noted that I saw only one individual wasp in the garden while that fruit lasted; nor did they increase at a later period of the season, except in a very slight degree. In the spring of the present year (1849) there were with us very few of the so-called breeding wasps. From this circumstance, combined with former experience, I prognosticated an abundant flight in the summer, which proved to be the case. By the beginning of August these insects were a perfect pest. There was but little fruit for them, but that little they attacked before it was ripe: the apricots they began to devour while they were yet hard and only beginning to change colour; even the rough coat of the peach was not proof against their voracious jaws: other fruit being gone, they laid siege to a red-currant tree against a wall, well hung with fruit, which usually hangs on till November, and stripped it of every berry in a very short space of time. On referring to some remarks I formerly made on this subject, in the 'Magazine of Natural History,' I find that the relative scarcity and abundance of wasps, in the years 1833 and 1834, precisely correspond with what I have above stated of the years 1848 and 1849. In 1833 wasps were abundant in the spring, scarce in the summer. In 1834 they were scarce in the spring, abundant in the summer. I may add that I am not aware of any peculiarity in the weather, in any of the above years, which might be supposed to affect either the scarcity or abundance of wasps at their respective seasons of appearance. Should any readers of the 'Zoologist' be able to throw light on the above fact, so contrary to what might be expected, I hope they will communicate their remarks through its pages.—*W. T. Bree; Allesley Rectory, near Coventry, October 10, 1849.*

Proceedings of the Entomological Society.

October 1, 1849.—H. T. STANTON, Esq., in the chair.

The following donations were announced, and thanks ordered to be given to the respective donors thereof: Catalogue of the Calcutta Public Library; Report of the Librarian of the same, for 1847 and 1848; presented by the Curators of that library. 'The Athenæum,' for May, June, July and August; presented by the editor. Six specimens of *Agrophila sulphuralis*, from Brandon, Suffolk; presented by Mr. Dunning.

The following gentlemen were elected corresponding members of the society; — Goding, Esq., M.D., Barbadoes; — Walcott, Esq., M.D., Barbadoes; Grant Thomas, Esq., Barbadoes: Daniel Blair, Esq., Surgeon-General, British Guiana; Captain — Hamilton, Madras.

Mr. Stanton exhibited a small species of Tineidæ of remarkable structure, new to Britain, communicated by Mr. Henry Doubleday.

Mr. Westwood stated that the species of Aphidæ found on the lettuce, recently described by him under the name of *Pemphigus Lactucæ*, had been previously noticed by Sir O. Mosley in the 'Gardener's Chronicle,' and by the Rev. L. Jenyns in his 'Observations on Natural History.'

Specimens of *Cosmopteryx pedella*, Linn. (*angustipennella*, Hübner), a species of Tineidæ new to this country, were exhibited by Mr. Dunning, from Brandon, Suffolk.

Messrs. Michael, G. Ingall and H. Ingall, having signed the obligation-book of the Society, were admitted members thereof by the chairman.

Mr. Dallas read the continuation of a paper on the Hemiptera of Boutan, in the East Indies; and Mr. Westwood read a paper containing descriptions of various new exotic Diptera, including a species of the remarkable genus *Achias*, from India.—*J. O. W.*

Proceedings of the Microscopical Society of London.

NOTE.—*No Meetings of this Society have been held since the last reported in this Journal.*

October 17, 1849.—GEORGE BUSK, Esq., President, in the chair.

After the usual routine business had concluded, the President rose, and stated that in the remarks he was about to make it was not his intention to enter into the question of the origin of diseases from Fungi; but as certain authors had recently published accounts of some peculiar appearances observed in the discharges of patients labouring under cholera,—when examined by the microscope,—to which they attributed the disease, he thought the subject of sufficient importance to justify him in calling the attention of the Society to it on that evening. He then stated that he should confine his attention to the papers of Dr. William Budd, Dr. Brittan and Dr. Swayne, each of whom had written papers and given drawings of bodies which they supposed to be Fungi. In the first place, he remarked that amongst the varied bodies figured by these gentlemen, there was only one set that bore so close a resemblance to each other as to claim anything like a common character. With regard to the figured bodies from air and water, they were not definite enough to yield any possibility of classing them with one body or another. With regard to the more definite bodies figured by Drs. Budd, Brittan and Swayne, and found in their preparations, he had, with one exception, found these in the matter passed by cholera patients on board the *Dreadnought*. These bodies, which were described as Fungi, were of three different kinds. First, there existed a cellular body, which was more particularly figured by Dr. Swayne, and existed in two of his preparations, one in the possession of Dr. Lankester, and the other in his own, which evidently exhibited the characters of the spore of a *Uredo*; and on examining some specimens of *Uredo* from a loaf of bread bought at a baker's, it was found to correspond precisely with the spore from the cholera patient. As this species of Fungus was very common in bread that had been kept, and easily resisted the digestive action of the stomach, the presence of it in a few cases was well accounted for. The second class of bodies, and which under a high magnifying power with a bad light looked exceedingly like the last, consisted of small portions of the inner membrane of the grain of wheat. In the coarser kinds of flour this membrane was not separated, and he had no doubt that these bodies were introduced with the bread eaten as food. A third form of these more definite bodies was evidently due to the presence of undigested starch granules. Drawings of all these bodies were exhibited, and their strong resemblance to the bodies figured by the Bristol observers was at once recognized. In conclusion, the author stated that he did not wish to pronounce an opinion that the existence of a vegetable organism, as

the cause of cholera, was impossible; but from the observations he had now laid before the Society, he considered that such a cause for the production of cholera had not yet been demonstrated.

Mr. Woodward said that he believed that things which persons took into their stomachs might produce some of the appearances described by Drs. Brittan and others. Mr. Topping had shown him, under the microscope, the ordinary chalk mixture, and the appearance presented by this substance was precisely similar to some of the things figured in the drawings from Bristol.

Mr. Varley, in support of the probability of the truth of the fungoid theory, gave an account of the rapid development of Fungi in the bodies of flies, and exhibited drawings of the same.

Dr. Lankester said that he did not think the supporters, or rather reproducers, of the fungoid theory, would have thought their observations sufficient to warrant their conclusions, if there had not already existed the hypothesis of the fungous origin of cholera. From the first time he had seen the drawings of Dr. Brittan, he had doubted the correctness of the conclusions of Dr. Budd and the subsequent advocate of the fungous theory. In the published drawings of Drs. Brittan, Budd and Swayne, many things had been evidently confounded under the common term Fungus. Inorganic, as well as organic, bodies of various kinds could be easily identified. He had at first failed to detect any bodies resembling Fungi at all, but in the preparation he had received from Dr. Swayne he recognized the spore of a Uredo, as had been described by Dr. Busk. He had obtained the same appearances as exhibited in some portions of Mr. Swayne's preparations, and the drawings of Dr. Brittan, from gruel, which was a not unlikely substance to supply the materials for the phenomena described. Some of the bodies figured as Fungi by the Bristol observers were evidently epithelial scales in different stages of disintegration; and the same bodies which had also been said to be fungoid had been found in the contents of the bladder.

Yorkshire Naturalists' Club.—The monthly meeting of this Club was held on Wednesday evening, October 3rd, in Archbishop Holgate's school-room; Professor PHILLIPS in the chair. The chairman made some interesting observations on the recent discovery of the remarkable fossil Batrachian (*Labyrinthodon Bucklandi*) in the new red sandstone, and exhibited a full-sized drawing of the head, which is in the possession of Dr. Lloyd: the length of this gigantic frog must have been nearly four feet. Mr. Graham exhibited an exotic male specimen of the new British warbler (*Sylvia Orpheus*), with the eggs: he obtained a female some short time back, which was shot at Wetherby, on the 6th of July last, and is now in Mr. Milner's collection: this bird much resembles the blackcap (*Currucula atricapilla*), but is quite distinct from it. Dr. Morris read a short account of this bird from the October number of the 'Zoologist.' Mr. Graham also showed a specimen of Buffon's skua (*Lestris parasiticus*), obtained from Redcar; an extremely rare bird so far south: three specimens are known to have been obtained recently in Yorkshire, during the prevalence of strong north-easterly gales. Dr. Morris also read accounts from the 'Zoologist,' of the occurrence in Yorkshire, lately, of specimens of the purple heron (*Ardea purpurea*) at Lowthorpe, and of the fulmar petrel (*Procellaria glacialis*) near Bridlington, recorded by the Rev. F. O. Morris. Mr. Acroyd Smith gave to the Club, for presentation to

the Yorkshire Philosophical Society, specimens of the *Silene Anglica*, obtained near Heslington, and of the interrupted club-moss (*Lycopodium annotinum*), from Bow Fell, Cumberland: he also exhibited specimens of the marsh club-moss (*L. inundatum*), and of the marsh gentian (*Gentiana Pneumonanthe*), from Skipwith Common. Dr. Thurnam presented to the Philosophical Society, through the Club, some curious specimens of iron pyrites, obtained from Huggate Dykes, and others from the Danes' Graves, near Driffield, during some recent antiquarian excavations; one of the specimens appeared to be the cast of a fossil sponge. After some conversation respecting the age of the yew and the oak, and the generally north-easterly direction of the prostrate trees in some of the submerged forests, particularly those in Hatfield Chase, the meeting broke up.

Men with Tails.—"African travellers have spoken of a tribe of negroes who possess that ornamental appendage so much admired by Lord Monboddoo, *a tail*; but their statements have never, I believe, received implicit credence. It appears, however, that a race of men with tails really does exist in the interior of Africa. In a recent sitting of the Académie des Sciences, M. du Couret related that in 1842 he found, in the service of a friend at Mecca, one of these wretches, the lowest assuredly of mankind. The creature had an exterior prolongation of the vertebral column to the extent of three or four inches. He stated that he belonged to the tribe of the Ghilanes, whose territory is situated far beyond the Sennar, who are thirty or forty thousand in number, worship the sun, the moon, the stars, the serpent, and the sources of a great river (supposed to be the Nile), to which last they immolate victims. They eat plants, roots, fruits, and raw flesh, and like it bleeding,—are very partial to human flesh, and eat the bodies of their enemies, of all ages and both sexes, whom they may slay in battle! They, however, prefer the flesh of women and children, as more succulent. They rarely exceed five feet in height, are ill-proportioned, with long, thin bodies, long arms, longer and flatter hands and feet than the rest of human kind, have the lower jaw large and long, the forehead narrow and excessively retreating, the ears long and deformed, the eyes small, black, brilliant, the nose large and flat, the mouth large, the lips thick, the teeth strong and sharp, the hair woolly, but not abundant. The man examined by M. du Couret had been so long in slavery as to have forgotten his native language; but he stated that, notwithstanding he had done all in his power to subdue the savage appetite, he was twice a week seized with a rage for raw flesh, which his master satisfied by giving him an enormous lump of mutton, and that if this were not done he felt that he could not refrain from slaying and eating a woman or child. M. du Couret says that the natural dispositions of this animal were good, that his fidelity to his master was striking, and that he was not without intelligence; but in the slave-markets of the East, where the race is not known, they are considered anything that is detestable."—*Literary Gazette*.'

[Is not this a hoax? Was such a paper as that described ever read before a scientific body? Information will be thankfully received.—*Edward Newman*.]

Cream-coloured Polecat.—Seeing an inquiry (Zool. 2440) whether any of your readers had seen a cream-coloured polecat, I beg to state that in January, 1847, I saw one amongst some rocks in our neighbourhood, and I believe they are not uncommon with us.—*J. R. Pedder; Ambleside, October 22, 1849.*

Cats and Nemophila insignis.—In January last my attention was directed to two communications inserted in the 'Zoologist,' respectively from Mr. Lawson (Zool. 2252) and Mr. Luxford (Zool. 2289), stating that cats evinced a great partiality for the *Nemophila insignis*; so much so, as to disfigure the plant wherever it might be growing. I then ventured to remark (Zool. 2343) that the cases in point might be exceptions, as I had failed on inquiry in hearing of a single case. Mr. Bull (Zool. 2380), confirms the statements of Messrs Lawson and Luxford, and Mr. Mc'Intosh (Zool. 2407) adds a note on the correctness of their remarks. So many confirmations made me think that mine must be the exception, yet, still feeling doubtful, I determined to endeavour to ascertain how far I was incorrect. I therefore procured a large parcel of seed, from Carter's, of Holborn, and distributed it to many of my friends, earnestly requesting them to report progress. I have now heard from the greater portion, and all, without an exception, most singularly confirm my remark (Zool. 2343). The places I have heard from are Plymouth, Lewisham (Kent), Wells (Norfolk), Wallasey (Cheshire), Walton Breck (Lancashire). I also planted a large quantity in my own garden, examining it most closely; and I fancy that my observations may possibly explain away several of the notes hostile to the cat. When this annual has grown to a certain height, it falls on one side (like mignonette), the stem being unequal to the weight imposed upon it: *this* gives the plant an appearance of having been *rolled* or trampled on: more especially is this the case when growing near a wall.—*Alfred Rains; 14, West Derby Street, Liverpool, September 5, 1849.*

The Yellow-breasted Marten (Martes —?)—I see an inquiry in the 'Zoologist' (Zool. 2588) respecting the specific character of the above animal: on that occasion it is described as *M. foina*, while another contributor (Zool. 2440) describes a Glamorganshire specimen as *M. abietum*. Do not these names refer to the two species, if species they be? It would be well in such cases if the intestines were carefully measured as to length, and any peculiarity as to the size or length of the vermiform appendage noted. I merely throw out this hint, as I think it very probable that accurate anatomical investigation only is wanted to prove the identity of the two British martens with the common species. Mr. Dillwyn, in his 'Materials for a Fauna, &c., of Swansea' (unpublished), mentions some of the martens from that part of Glamorganshire as being characterized by the yellow throat; but he seems rather to doubt the existence of any specific difference. He says that Mr. W. W. Young, A.L.S., assured him that the martens of the Neath Valley have generally, if not always, the throat more or less tinged with yellow. (See also Zool. 345, 1806, 1870).—*Beverley R. Morris, A.B., M.D.; York, October 8, 1849.*

Food of the Water Vole (*Arvicola amphibius*).—Mr. Gurney will excuse me, I trust, for doubting the correctness of his supposition (Zool. 2588), that the water vole feeds on the fresh-water mussel. Nine years ago I was led into a similar error, by finding heaps of broken and empty shells of that fish on the bank of my lake, near burrows, which I took to be those of the water vole. I mentioned my opinion to a brother naturalist, and thus commenced a very pleasant correspondence with Mr. Harley, of Leicester, who advocated the innocence of the water vole, upon the ground that the anatomical structure of its teeth, stomach and viscera, were against such a

conclusion. I adopted, however, another mode of settling the matter: I placed steel traps in the burrows, and I had soon the satisfaction of catching therein several fine specimens of the common brown rat. Although the water still abounds with water voles, I have found no more heaps of broken shells. I should be glad if any of your numerous correspondents would inform me how the common rat breaks the shell and extracts the mussel.—*Oswald Mosley; Rolleston Hall, October 6, 1849.*

Capture of a Finner Whale in the Thames.—No trifling curiosity has been created at Grays, Essex, and in the adjoining river-side parishes, by the remarkable capture of a fine whale, in the Thames, off that village. In the course of Tuesday afternoon, October 9th, several labourers in the employ of Messrs. Meeson, the lime merchants, had their attention drawn to something dark floating on the river, which appeared to be a vessel bottom upwards. It was noticed to be floundering about for a short time, when suddenly the violent plunging and dashing of one end of it intimated to the men that it was some living monster of the deep. The tide was low at the time, and a brief inspection of the animal convinced them that it was no other than a whale, and that it was hard and fast ashore on the Black Shelf, a shoal running abreast of Grays. Boats were immediately put off, with a view of making secure the prize, which continued to lash its tail with much violence as the water left it more fast, if possible, on the shoal. The difficulty experienced in securing it may be imagined from the fact that it measured no less than 58 feet in length and 30 in girth. After some trouble, the monster was fixed by the aid of ropes and other means, and as the tide flowed, arrangements were made to haul it ashore. The water at length floated it, when the creature made desperate efforts to obtain its freedom. The ropes, however, held it, and, during a scene of great excitement, it was dragged on to the beach, and secured against the possibility of getting away. By the aid of a sword its life was dispatched, and the men then set about inclosing it for exhibition at 6d. a head, and it has thus remained until the stench has become so bad as to render its removal necessary.—*E. N.*

Occurrence of the Osprey, Pied Flycatcher and Reed Wren at Scilly.—Examples of the above species have been procured, during the past week, from the Scilly Isles; and the circumstance deserves notice as regards the last two species, because they have hitherto been unknown to our Fauna. The pied flycatcher appears to be a young bird of the year, and is a very rare bird in our western counties. The reed wren (*Salicaria arundinacea*) has never fallen under my notice before, although its congeners, *S. Phragmitis* and *S. Locustella*, are well known throughout the county. We have had a severe easterly gale, and I have no doubt these little birds were driven from their migratory southern course by its violence.—*Edward Hearle Rodd; Penzance, September 29, 1849.*

Occurrence of the Woodchat (Lanius rufus) at Scilly.—In addition to the migratory birds which I have reported as having occurred at Scilly during the past fortnight, I am enabled now to add the capture of a valuable and rare British bird on those

islands during the past week, viz., the woodchat shrike. I append a description of the bird, which is immature. Forehead, crown of the head and nape ash colour, blended with indistinct brown and rufous spots: beak dark horn colour; under mandible at the base saffron-yellow: middle part of the back dull white, barred with black, bordered on each side with umber-brown: scapularies white, deeply margined with brown, some of the feathers having a mixture of rufous: primaries black, with the basal halves white, tinged with yellow towards the upper parts: great wing-coverts dark brown, partially covering the white of the primaries, leaving a patch only visible; secondaries black, deeply margined with rufous and tipped with a lighter colour; lesser coverts the same: rump and upper tail-coverts nearly white, with indistinct semicircular bars of brown; those next the tail rufous, edged with black: tail, hair brown; the exterior feather deeply tipped with dirty white; outer web, and a small portion of the inner web next the shaft, white; the other tail-feathers more or less tipped with the same colour: the whole of the under parts dirty white, rayed with irregular semicircular and lance-shaped marks: belly dirty white: legs and feet black. The same despatch which brought this interesting specimen, brought also a specimen of the garden warbler (*Curruca hortensis*), and, within a day or two afterwards, a wryneck; all no doubt bound for their southern retreats, but driven out of their course by the late easterly gale.—*Id.*

Occurrence of Scolopax Brehmi in Scotland.—The following notice occurs in the 'Annals and Magazine of Natural History' for this month. "Two specimens of Gallinago Brehmi have been shot at Jardine Hall, on the 9th and 10th of October, being the first time that this species has been noticed as visiting our islands. We have no doubt that it has hitherto been overlooked, but one distinction is very easily noticed. On comparing the tail with that of the common snipe, it will be seen that the outline of the latter is rounded, while in *G. Brehmi* the outer feather exceeds the length of the second. At this season of winter migration we would invite sportsmen to attend to the finding of this bird. WILLIAM JARDINE, Jardine Hall, October 11, 1849." This is the *Scolopax Brehmi* of Gould's 'Birds of Europe.' Can any of your correspondents supply a description? Collectors visiting the London markets should have an eye for this species.—*Robert F. Tones; Welford, November 5, 1849.*

Moorhens roosting in Trees.—In answer to an inquiry of the Rev. F. O. Morris (Zool. 2591), whether it is the usual habit of moorhens to roost in trees, I believe it is not at all an unusual occurrence: I saw, in March last, three roosting together in a tall hawthorn overhanging a stream; and two winters ago a friend of mine shot a water-rail, which he found in a thick holly bush.—*J. W. Hulke; 155, Lower Street, Deal, October 19, 1849.*

Occurrence of the Great Northern Diver at Penzance.—The last week has produced two specimens, apparently females, of this diver, in full summer plumage. The fact is worth noticing, merely to confirm the impression which a similar notice of mine two years ago conveyed, when referring to the capture of this bird, in the month of October (I think rather earlier than the present instances): I stated that, from the appearances which the under plumage presented, there was every reason to believe that the genus *Colymbus* undergoes the autumnal moult later than most other birds, and which would account for the summer livery remaining unchanged. The present two specimens exhibit precisely the same symptoms, viz., the new under feathers in a state of active development, and of an uniform cinereous hue.—*Edward Hearle Rodd; October 24, 1849.*

Autumnal Migration of Birds at Scilly.—I understand that a host of the migratory warblers still hangs about the islands. Reed wrens, pied flycatchers, redstarts, willow wrens, garden warblers, &c., have all been captured; and a large buzzard-like-looking bird, with a yellow head,—which will prove, I have no doubt, to be the marsh harrier,—has been seen.—*Id.*

Inquiry respecting the Gray-legged Goose.—In the very interesting paper recently published in the 'Zoologist' on the birds of Oxfordshire, from the pens of the Revds. A. and H. Matthews, the gray-legged goose (*Anser ferus*) is spoken of as "always common during the winter months, and in some years unusually abundant" (Zool. 2538), which I am surprised to hear, as in this county, which would seem to be more favourably situated for aquatic birds, this goose only appears as an extremely rare visitor,—whilst another species, which is not mentioned in the Oxford catalogue, viz., the pink-footed goose (*A. phœnicopus*) is rather a common winter visitant in Norfolk. Is it possible that the specimens noted in the Oxford catalogue as gray-legged geese are bean geese, whilst those noted as bean geese are pink-footed geese? I trust I may be excused for suggesting this question, and should be glad if it were to lead to some re-examination of the actual specimens. I may perhaps be allowed, in conclusion, to advert to the ready diagnosis which is afforded by the well-known fact that in the gray-legged and white-faced geese the "nail" of the bill is always white, whereas in the bean and pink-footed geese it is always black.—*J. H. Gurney; Easton, Norfolk, October 30, 1849.*

Note on the Colour of the Down of Water Birds.—I am not aware that the colour of the down of the water birds has ever been noticed in any work on natural history,—at least it has not in any that have fallen in my way. I have been in the habit, for two or three years, of noting the colour of the down of the few birds I have preserved myself in that time, as it occurred to me that it would very possibly form a good specific character, which in some cases of doubt would be very valuable. I have not done sufficient yet in the way of observation in this matter to be able to send a series of facts for the 'Zoologist,' but am induced to call the attention of naturalists to the subject, in hopes that those who have more opportunities than I have of examining young and adult water birds, would note the colour of the down in both stages of age. I should be particularly obliged to any fellow-labourer in natural history who would inform me as to the colour of the down in the masked gull (*Larus capistratus*). A bird which I believe to be the young of this gull was shot near York some three months ago: in this the down is dark-coloured, while in the allied species (*L. ridibundus*) the down is white,—at least in the adult bird. If any of the readers of the 'Zoologist' would kindly send me positive information on the colour of the down of any of our water birds, and state whether the specimen on which the observation was made was young or adult, they would greatly oblige me, and I would then combine the information I might thus obtain with the facts I have myself observed, and if any useful result were obtained I would publish it in the 'Zoologist.' This character is so easily observed, that—should it prove constant—it would, I think, be very useful, and prevent many mistakes from being made.—*Beverley R. Morris, A.B., M.D.; York, October 6, 1849.*

Occurrence of the Fork-tailed Petrel (Thalassidroma Leachii) near Yarmouth.—A specimen of this bird was killed near Yarmouth about the middle of this month.—*J. H. Gurney; Easton, Norfolk, October 30, 1849.*

Occurrence of Rare Birds at and near Wisbech.—The dusky sandpiper (*Totanus fuscus*), pigmy curlew (*Tringa subarquata*), little stint (*Tringa minuta*), and Temminck's stint (*Tringa Temminckii*). Eight specimens of the first-named rarity were caught in a plover net on Guyhirn Wash, on the 11th instant, all of which are now in my possession: two of the specimens were undergoing the change between the summer and winter dress; the other six had assumed it: upon dissection, five of them proved to be males and three females. A flock of twelve was seen; eleven alighted, but in taking them out of the net three escaped. Pennant named this bird the Cambridge godwit, probably from its being commonly found in that locality; but of late it has become so exceedingly scarce, even in its once favourite haunts, that to my knowledge more than sixteen years have elapsed since any were shot here. The pigmy curlew, little stint and Temminck's stint were shot on the banks of the river, less than a mile below the town, and I have since preserved them.—*T. W. Foster; Curator of the Museum, Wisbech, October 23, 1849.*

The Birds of Oxfordshire and its Neighbourhood.

By the Reverends ANDREW and HENRY MATTHEWS.

(Continued from page 2603).

Great-crested Grebe (*Podiceps cristatus*). Is sometimes found in this neighbourhood. "Near Hungerford, Berks, February, 1808."—*Dr. T.*

Red-necked Grebe (*Podiceps rubricollis*). On the 10th of October, 1848, a fine specimen of this bird, in the winter plumage, was shot on Sanderton mill-pond, near Risborough, Buckinghamshire. "In May, 1792, a red-necked grebe was killed at Burghfield, in Berkshire."—*Dr. T.*

Slavonian Grebe (*Podiceps cornutus*). This bird is rarely met with during the summer, although several have been killed near Oxford in their winter dress.

Eared Grebe (*Podiceps auritus*). The eared grebe, like the foregoing species, has been killed here in the winter months; and in June, 1847, a specimen was captured on the Isis, near Sandford, in the full summer plumage.

Common Guillemot (*Uria Troile*). "Once killed on the river Isis, at Sandford, near Oxford, in October, 1840."—*K.*

Little Auk (*Mergulus Alle*). Several specimens of the little auk have been caught alive in this neighbourhood. The last of these was found in November, 1845, in Christchurch Meadow, in an exhausted condition, and unable to escape. It has also been "killed near Newbury, Berkshire."—*Dr. T.*

Puffin (*Fratercula arctica*). "A specimen of this bird was taken alive in Northbrook Street, Newbury, March 16th, 1810."—*Dr. T.*

Common Cormorant (*Phalacrocorax carbo*). In December, 1845, a fine bird of this species was shot on a large piece of water in Kirtlington Park, near this place, by Frederic Dashwood, Esq., and presented to us. Also "on Frilham Pond, near Newbury, November, 1803."—*Dr. T.*

Green Cormorant (*Phalacrocorax cristatus*). A green cormorant was shot on the Isis, near Oxford, a few years ago, and taken to Mr. Forrest. "Near Pangbourn, Berkshire, September, 1794."—*Dr. T.*

Gannet (*Sula Bassana*). On the 14th of October, 1838, two of these birds were seen near Wytham, Berkshire. One of them, a male in the immature plumage, was killed by the Earl of Abingdon's game-keeper, and is now in our collection. About the same time, an old bird of this species was seen passing over this place (Weston). It has also been met with on other occasions in this neighbourhood.

Sandwich Tern (*Sterna Boysii*). The Sandwich tern has been killed on Otmoor, and "near Oxford, August 24th, 1847."—*K.*

Roseate Tern (*Sterna Dougallii*). "This bird has twice been killed on the river Isis, near Oxford."—*G.*

Common Tern (*Sterna Hirundo*). Is often found in this part of the kingdom, especially during the spring months.

Arctic Tern (*Sterna arctica*). The arctic tern has occasionally been killed near Oxford, and in other parts of the county. A nest of this species, containing four eggs, was found on Otmoor, in the summer of 1834. This is the only instance which has come to our knowledge of any sea-fowl building so far inland. The eggs, together with the parent birds, were taken to Mr. P. Forrest, and preserved by him.

Lesser Tern (*Sterna minuta*). In June, 1846, we saw one of these beautiful little birds flying about the margin of the lake in Kirtlington Park, near this place. Specimens have occurred near Oxford, and in other parts of this county.

Black Tern (*Sterna nigra*). This tern is also occasionally found in our neighbourhood, generally in its immature plumage: adult birds have, however, been killed near Oxford, and upon Otmoor.

Black-headed Gull (*Larus ridibundus*). Occasionally visits us singly, or in parties of three or four together.

Kittiwake (*Larus rissa*). Except during the breeding season, the kittiwake is a common visitor throughout the year.

Common Gull (*Larus canus*). Is also frequently seen in this neighbourhood.

Iceland Gull (*Larus Icelandicus*). In our collection there is a fine specimen of this gull, in the plumage of the first year, which was killed on Port Meadow, near Oxford, in the spring of 1836.

Lesser Black-backed Gull (*Larus fuscus*). Has been occasionally killed and often seen in this county.

Herring Gull (*Larus argentatus*). This species is also frequently seen here.

Great Black-backed Gull (*Larus marinus*). Often passes over this place in small flocks of four or five.

Pomarine Skua (*Lestris Pomarinus*). We have seen two specimens of this bird, both in the immature plumage, which had been shot in the vicinity of Oxford. The last of these occurred in November, 1848; and the first, now in the collection of H. E. Strickland, Esq., in February, 1834.

Richardson's Skua (*Lestris Richardsonii*). Young birds of this species have frequently been killed in our neighbourhood. We know of only one instance of its appearance in the full plumage: this happened on the 27th of June, 1837, on which day we observed an adult bird passing over our heads, within gun-shot of the ground, and flying towards the north-east.

Fulmar Petrel (*Procellaria glacialis*). On the 20th of February, 1839, a male fulmar was found alive near Weston Wood: when brought to us he showed no sign of fear nor any desire to escape, but sat on our hands, and appeared to enjoy some hog's-lard, which he ate in great quantities. His method of feeding was rather curious: he would pick up a piece of lard about half the size of a wine-cork with the point of his bill, and then, throwing back his head with a jerk, and at the same time opening his mouth, would allow it to fall into his throat: the smaller pieces he could not manage, as they adhered to the large hook at the end of his bill, from whence he was unable to detach them. Another specimen, also in our possession, was killed on Port Meadow, in May, 1836.

Manx Shearwater (*Puffinus Anglorum*). "Taken alive near Chipping Norton, September, 1839."—G.

Fork-tailed Petrel (*Thalassidroma Leachii*). A bird of this species was found dead by a labourer in this parish, in February, 1838: it had apparently died from starvation. Other specimens have also been picked up in a similar condition. "One shot near Henley, 1847."—G.

Storm Petrel (*Thalassidroma pelagica*). "A storm petrel was caught by a boy at plough near Chipping Norton, who whipped it

down in an exhausted state, November, 1846.”—*G.* A flock of five of these birds was seen near Ensham, in December, 1837: two of them were shot and taken to Mr. P. Forrest.

A. & H. MATTHEWS.

(To be continued).

Glyceria fluitans attractive to *Moths*.—While walking round the margin of Duddingston Lock, with my net, one evening in the end of July, I observed, in a very wet spot, a *Leucania* hanging upside-down from the panicle of a grass, and on sweeping it into my net I found that I had enclosed, at the same time, a specimen of *Chersotis Haworthi*. This led me to look around a little more attentively; and I soon discovered that the *Noctuæ* were settling in swarms upon *Glyceria fluitans*,—which was growing thickly on the spot,—evidently attracted by the saccharine matter on the ovaries. They were chiefly *Leucania impura*, with a few of *L. conigera*, *Chersotis Haworthi* and *Noctua umbrosa*. A few days after I saw *C. Haworthi* on the same grass in the day-time.—*R. F. Logan; Duddingston, near Edinburgh, October, 1849.*

Moths and Honey-dew.—In what way do moths ascertain the existence of honey-dew on trees and plants? Is it by the sense of smell, or of sight? Does the secretion exhale an odour perceptible to them, though not to us? or do they understand the curled and spotted appearance of the leaves, which indicates the presence of *Aphides*? The subject was forcibly suggested to me on the night of the 3rd of July, while observing the manner in which the *Noctuæ* descended upon some currant-bushes infested with *Aphides*, but which gave out no smell perceptible to me; while they totally disregarded a bed of blooming pinks close by, though emitting a most delightful perfume, and being besides a flower which at times they are very fond of. We know that their sense of vision is remarkably acute, and that they seem at all times to prefer honey-dew to every other description of food. I have observed them flocking to it at times when they would not come near the sugar and rum spread on the trees to attract them.—*Id.*

On setting Lepidoptera flat.—I wish to say a few words on that much-disputed point, the flat setting; and, in the first place, I must endeavour to get my readers to admit that an insect set round has seldom a natural appearance. Besides the convexity of the surface, which certainly in most cases is *not* natural, the contour of the wings is seldom preserved, as it is altered according to the curve of the cork or braces by which they are set (as any one may ascertain by setting the same moth first flat and then round), and if not lost entirely, it is never so easily apprehended as in an insect set flat. On this account an artist would seldom be sure of taking a perfectly correct outline of an insect set round. The only *Lepidoptera*, so far as I am aware, that have naturally a slightly rounded or convex appearance, are the *Eupitheciæ* and *Acidalix*, and some of the small moths, as *Cochylis*; and these will retain it to the extent which is natural, in spite of the flat setting, if the braces are placed—as they always should be—across the tips of the wings. In the second place, the light in a room, unless coming from above when the insect is placed in a horizontal position, or

exactly opposite to it when vertical, never falls equally on a round-set specimen, some part of its surface being always in the shade,—an inconvenience entirely avoided by the flat setting; besides the great advantages which it affords over the round method in examining minute species with a lens, as noticed by Mr. Douglas. We ought to present all our insects as nearly as possible fresh from the hands of the Creator, unsullied by anything of man's invention; and I think there can be little doubt that the flat or horizontal mode of setting not only displays *all* winged insects to the greatest perfection, but is the least artificial which in the circumstances can be adopted, and I hope soon to see it become as general as it is on the Continent.—*Id.*

Notes of Captures of Tineidæ, with Remarks on the Specific Distinctions of some closely-allied Species, and Descriptions of New British Species. By H. T. STANTON, Esq.

Where no locality is mentioned, Lewisham is to be understood.

Chilo forficellus. Two males, at light, June 28 and July 5.

Chilo mucronellus. Taken at Yaxley, this year, by Mr. Bond.

Chilo gigantellus, W. V. (*punctigerellus*, St.) Also taken at Yaxley, in June and July. This species is omitted from my Catalogue.

Crambus pascuellus. June 23, at Wickham; July 8, at Mickleham; July 16, at Richmond Park. I never take this at Lewisham: it appears to prefer sand or chalk to clay.

Crambus cerussellus. One male, at Mickleham, July 9. The only one I saw.

Crambus falsellus. Two, at light, July 16 and August 8. This species has again been taken, flying over an old cart-shed, at Stoa's Nest: the thatch of the shed is much covered with moss, in the roots of which the larva probably feeds.

Crambus perlellus. Among my specimens taken this year are two well marked with brown radiations, but not at all approaching to *Warringtonellus*, which Mr. Cooke has again taken in plenty, and which there can be no question is a distinct species.

Eudorea ambigualis. Four: one at Lewisham, among fallows, June 18; two on oaks, at Wickham, June 23; and one on the Dartford Heath fence, June 27. The *Eudorea* taken by Mr. Hodgkinson, among club-moss, on the Scotch mountains, appears to be a pale variety of this species.

Eudorea pyralella. Four: one at Lewisham, June 19, flying along a hawthorn hedge; two on the Dartford Heath fence, June 27; and one at Mickleham, July 7.

Eudorea frequentella. This keeps out a long time. I took it from June 27 to August 16, and many of the specimens taken in August were very fine.

Eudorea cratægella Two, at Mickleham, July 6, among the junipers at the corner of the downs. These specimens differ slightly from my other specimens, in the anterior wings having a yellowish tint instead of the ordinary clear grayish white ground colour. Mr. Logan has taken a fine series of this species at Duddingston, and could have taken more but that he thought it was *frequentella*, of which, however, he had not taken a single specimen: he says *cratægella* is decidedly the commonest of the genus with him.

Eudorea coarctata. Five, on the face of a rock at Arthur's Seat, September 13. I have had this species sent me from Exmouth, where it occurs in plenty on the cliffs.

Aphomia colonella. Two females, at light, August 7 and 21. This sex is much the commoner with me.

Achræa grisella. Thirty-four, bred from a piece of honeycomb that was sent me from Sheffield: the first made its appearance on the 21st of June, and they continued to come out till the middle of August. I have now a number of the larvæ feeding.

Nephopteryx roborella. Two males, at light, August 7 and 22.

Pempelia dilutella. Two males and one female, at Mickleham, on the downs, July 6, 7 and 9. The female is the obscura of my Catalogue, which is not the adornatella, Z. The species allied to this resemble one another so closely that I think I cannot do better than annex the distinguishing characters and habitats of each, as given by Zeller in his monograph of the group. I may thereby enable some entomologists to detect in their collections one or more of the species which are at present unknown to us as British.

Pempelia obductella. Allied to the five following species, and distinguished among them by its dark chestnut-brown anterior wings,—being lighter only on the costa and inner margin,—and by its hinder fascia, which arises far below the costa, and near the inner margin is broadly interrupted: adornatella is much paler, and has either a complete second fascia or it begins distinctly on the costa, and has always two quite distinct black middle spots, whereas in obductella the upper is indistinct and small, or generally wanting: subornatella has, besides many other differences, a fascia-formed, whitish, transverse cloud, between the base and the first fascia. The larva lives up to the beginning of June, in the united upper leaves of *Mentha arvensis*, from which, on disturbance, it falls to the earth. It changes to a pupa in a white cocoon, between green or dry leaves. After fifteen days the perfect insect appears, and is found up to the middle of August. Schläger states that the larva feeds in June, between the leaves of the young stems of marjoram (*Origanum vulgare*).

Pempelia thymiella. Closely allied to the four following species, but immediately recognized by the upper of the two black spots being prolonged beyond the middle to a black streak: it approximates to subornatella in that, before the first fascia, the whitish colour of the costa is carried fascia-form towards the inner margin, though not so distinctly; but subornatella has two black spots on the white ground, and the second fascia margined with brownish yellow on both sides: nearer still to it stands *P. sororiella*, but yet differs from it by the more slaty gray colour of the disk of the anterior wings, the want of the pale fascia-formed cloud before the first fascia, the more rounded form of the upper middle spot, and the usually very indistinct line of spots before the hinder margin: ornatella, with its first fascia several times broadly interrupted, and the much darker adornatella, with its angulated second fascia, are less closely allied to thymiella. Zeller discovered this species near Syracuse, June 16th, on a species of thyme: he found silky cocoons between the leaves and stems of the thyme, similar to the cocoons generally formed by the larvæ of the Phycidæ: hence he concludes that the larvæ feed on that plant.

Pempelia sororiella. Differs from the preceding, which it resembles in size, in its narrower wings, darker colour, angulated first fascia, the form of the two middle spots, faint row of spots before the hinder margin, &c.: differs from ornatella in its being quite of a different colour, and in the fineness and completeness of the fasciæ:

from *adornatella* for the same reasons, and also in the slight curve of the second fascia, which in this latter is angulated and ragged: from *subornatella* in its different colour, and the want of the fascia-formed white cloud between the base and the first fascia. Zeller took this species at the same time and place as the preceding, but more sparingly, and the specimens mostly wasted, implying that it appears earlier than *thymiella*. It may seem, to many entomologists, that species found hitherto only in Sicily are hardly likely to occur in this country; but if they call to mind that *Lithocolletis* *Messaniella*, *Gelechia* *vilella* and *Depressaria* *rotundella* are species similarly occurring in Sicily, but not in other parts of the Continent, the invalidity of this objection will be apparent. Sicilian species will most likely be found on our southern coast.

Pempelia ornatella. Known among the species which have not the second fascia angulated, by the first fascia being spotted with black on both sides and broadly interrupted by the ground colour below the middle. This occurs in most parts of the Continent, and nowhere scarce, frequenting dry places which are thickly clothed with low weeds, in June and July. Here it appears to have become extinct, for though in most old collections I know of no recent specimens.

Pempelia subornatella (*dilutella* of my Catalogue). Differs essentially from *ornatella* in the deeper, much more brown-red ground colour; in the completeness of the two fasciæ, which at least are never interrupted by the ground colour between the medial and subdorsal nervures; in the presence of a white fascia-formed cloud* between the base of the wing and the first fascia; in the want of black long spots before and behind the second fascia: it is distinguished from *adornatella* by the clearer white of the anterior wings, the presence of the whitish fascia, and the slight angulation of the second fascia; and from *sororiella* and *thymiella* by its deeper brown colour, its thicker fasciæ on the anterior wings, &c. The larva feeds on thyme (*Thymus serpyllum*), and the perfect insect occurs where that plant grows, at the end of June and beginning of July.

Pempelia adornatella. Distinguished from *ornatella* by its dirty reddish yellow ground colour, by the strongly angulated second fascia, and by the brownish instead of black spots on the anterior wings (excepting the two medial spots and the row on the hinder margin); from *subornatella* by the want of the fascia-formed cloud between the base of the wing and the first fascia; from *thymiella* and *sororiella* by its much darker and dirtier ground colour. This occurs in dry weedy places and meadows, often along with *ornatella* and *subornatella*, in June and the beginning of July, at Frankfort-on-the-Maine, Frankfort-on-the-Oder, Dantzick, Glogau and Vienna.

Pempelia perfluella. Four, attracted by light, June 23, July 17, 21 and 27. This species occurs twice in Guenée's Catalogue,—once as *dubiella*, and again as *perfluella*.

Ephestia elutella. Two, on palings at Lewisham, July 15 and 22. One of the specimens appears a variety, with the first fascia straighter and more strongly margined, thus approximating to *Ephestia biviella*, *F-v-R*.

Homæosoma sinuella. One, at Charlton, June 26.

* This white fascia-formed cloud is much more distinct in some specimens than others. Mr. Logan has a specimen, taken on Arthur's Seat, in which it is as bright and distinct as the first fascia itself.

Acrobasis consociella. Six: one bred, July 1; one bred, July 5; one at light, July 21; one on palings at Lewisham, July 28; one on palings, August 1; and one at light, August 1. The larva feeds between united oak-leaves, one side of which only it eats, thus discolouring them and revealing its place of concealment.

Myelois recurvella. Five: two at light, July 27; one beat out of a mixed thicket (with much hawthorn), near Stoat's Nest, August 2; two at Lewisham, on palings, August 23 and 25 (these were much wasted). This is unquestionably advenella, *Zck., Tr., Z.*, which name being the older is to be retained. Guenée must have had something very erroneous as advenella, as he does not once compare his recurvella with advenella.

Semioscopis Steinkellneriana. Much scarcer with me this spring than last: I found only four wasted specimens, April 26 and May 4.

Tinea bistrigella. Three among oaks, at Torwood, June 5; one at Wickham, June 23.

Tinea Ehlmanniella. Three among oaks, at Torwood, June 5, thus much later than *masculella*.

Tinea masculella. April 29 to May 19, common in hedges. Mr. Allis has obtained a new species closely allied to this, near Halifax: it is the *Tinea Zinckenii* of Zeller: it is readily distinguished from *masculella* by the paler, more bronzy anterior wings, and by the darker head of the male, which resembles *masculella* in having pectinated antennæ.

Tinea ferruginella. One, beat out of hedges at Lewisham, July 1.

Tinea monachella, Hbn. 143, Tr., Z. This very distinct species of *Tinea* was taken at Yaxley last May, and is in the collections of Mr. H. Doubleday and Mr. Shepherd. It may be at once recognized by its black anterior wings having a large snow-white patch on the costa beyond the middle: the side of this white patch, which is towards the inner margin, is deeply indented with the ground colour.

Tinea tapetzella. Three, June 21 to July 12, from the lining of a carriage.

Tinea arcella. Two, from hedges at Lewisham, June 25 and August 1.

Tinea cloacella and *rucicolella*. Plentiful in hedges, especially near the pollard oaks, of which so many hedges here are principally composed, from June 15 to July 1, and again in August. I begin to be very sceptical of the distinctness of these two species, as I find I have this year invariably taken them together. Herr Zeller writes me word that these and *granella* are only varieties of *one species*, the larva of which feeds on grain, Fungi, rotten wood, &c., and that the perfect insect varies according to the food of the larva; but I do not feel at all satisfied on this point: to prove it, it would be necessary to breed all the varieties from one batch of eggs.

Tinea carpinetella. One, June 25, beat from hedges.

Tinea Knockiella. One, in the house, August 8.

Tinea spretella. With me a rare species. I took one in the house, October 7.

Tinea pellionella. At light, June 23, 28, July 16 and August 29.

Tinea biselliella. Very plentiful, in the house, May 28 to July 29: they attacked the feather part of a bundle of quills, which they nearly stripped: another family made themselves at home in the horse-hair lining of a sofa.

Tinea ganomella. Three, beat from hedges, May 15 to May 27, at Lewisham; one at Sheffield, June 9. This was much scarcer than usual.

Tinea comptella. Fifteen, from hedges, principally sloe, April 29 to May 28. This flies about dusk, and has a very peculiar irregular flight: it is not a good species

to box, as it is so restless that it is frequently spoiled before morning. It does not appear to be double-brooded, like the two following species.

Tinea cæsiella. June 18 to July 1, and July 23 to 28. When in Scotland I met with a variety (?) of this species in plenty, in Torwood, June 5, among mixed under-wood. The anterior wings are darker than in the ordinary specimens of cæsiella; and the crown of the head, instead of being clothed with snow-white hairs, has a copious admixture of dark brown hairs. The specimens do not at all vary among themselves. Is it a distinct species or a Scotch variety?

Tinea cerasiella. The first brood was later than usual in appearing, my first capture bearing date May 3 (in former years I have frequently taken it as early as the middle of April); my last capture of the first brood bears date May 26. I took two of the second brood July 30th. The habits of this pretty little species, which frequents our whitethorn hedges while in their first burst of verdure, are, I presume, too well known to all Lepidopterists to need comment from me.

Tinea oxyacanthella. I rather think I have taken three of this species this year, but as they are none of them fine I cannot feel certain about it: their dates of capture were July 21, 28, and August 2. The species is probably not rare, but overlooked, being confounded with cæsiella. I am unable to give further information of its distinctive characters than are given in my Catalogue.

Micropteryx aruncella. Both sexes common among flowers, near Carron, June 4 and 5; two females among bushes at Wickham, June 23; one at Dartford Heath, June 27; both sexes at Mickleham, July 7. The female aruncella may always be certainly distinguished from calthella by the purple colour at the base of the wing never reaching to the inner margin; it stops short soon after leaving the costa.

Micropteryx calthella. Taken in considerable plenty last May, by Mr. Cooke, near Warrington, and by Messrs. Inchbald and Dunning, near Huddersfield.

Micropteryx Allionella. I beat one from a mountain ash, near Airthrey, North Britain, June 3. According to Mr. Dunning's observations, it frequents oaks near Huddersfield.

Micropteryx subpurpurella. Among oaks at Wanstead, May 3; at Airthrey, June 2; and Torwood, June 5. I did very wrong in my Catalogue in placing *Micropteryx semipurpurella*, St., as a synonyme of *purpurella*, Haw., St. It is a very distinct species, and readily distinguished by its size.

Nematopogon Swammerdammellus. One at Lewisham, May 26; three in Torwood, June 1; and one at Airthrey, June 3.

Nematopogon Schwarzziellus. Common at Lewisham, in hedges, among oaks, May 21 to 27; at Torwood, June 1 and 5; and at Airthrey, June 2 and 3. Mr. Allis has a specimen which is certainly distinct from this, being much darker and the anterior wings broader; but I do not feel competent to describe it as a distinct species without seeing more specimens of it.

Adela fibulella. This most certainly does frequent the *Veronica Chamædrys*, as I took one on that plant at Lewisham, May 27; and upwards of fifty specimens at Carron, June 4 and 5, on a sloping bank, where this plant grew abundantly. The insect is most plentiful about mid-day: after 4 P. M. none were to be found where they had been so plentiful but a few hours before.

Adela fusco-cuprella. Mr. Weir took a specimen of this at Lewes, in May.

Adela Sulzella. One specimen, at Birch Wood, June 27.

Adela DeGeerella. One specimen, at Wickham, June 23.

Adela viridella. Three females, June 1 and 3, at Airthrey, and June 9, at Woodhead Moors.

Though I searched the willows diligently when in bloom, I saw no cuprella.

Plutella cruciferarum. May 29 to August 7: this appears to keep out continuously the whole summer.

Plutella maculipennis. One, at light, August 25.

Plutella annulatella. Two specimens were taken by Mr. Jobson, on the coast near Belfast, at the end of August.

Plutella Dalella. One at Torwood, among heather, September 10.

Plutella fissellus. At Mickleham, as early as July 26; very common at Torwood, &c., in September.

Plutella costella. One at Mickleham, from beech, July 26; one at Lewisham, August 23, from oak.

Plutella sylvella. Three, from oaks, at Lewisham, August 23, 30, and September 5.

Plutella alpella. Of this hitherto scarce species I took not less than seventy specimens, from July 31 to August 6, at Lewisham, beating them from oaks. I have taken both sexes of it, so that it is a species distinct from antennellus, of which I have not seen a single specimen this season.

Plutella Harpella. Common among honeysuckles, in August.

Ypsolophus marginellus. At Mickleham, from the juniper, July 6 to 11; one at Lewisham, at light, August 1.

Anarsia spartiella. I took a single specimen in my garden, August 4.

Anchinia bicostella. Abundant at Wickham, May 23.

Harpella Geoffroyella. Common, May 27 to July 17. This species does not seem to occur in the North of England at all. Has any entomologist been so fortunate as to meet with its ally?

Ecophora sulphurella. Common in May, in hedges where blackthorn grows. The larva feeds under the bark of a cherry tree in this neighbourhood.

Ecophora Olivella. Five, from oaks, June 24, July 30 and August 5.

Ecophora oppositella. One, June 23, at light. What can this feed on? It is generally found in houses.

Ecophora quadripunctella. Two, May 29, in hedges.

Ecophora tripuncta. Exceedingly abundant from the 15th of June to the end of the month: it very soon gets wasted.

Ecophora lunaris. July 21 to August 13, on palings, near willows.

Ecophora lambdella. Mr. Douglas took a specimen at Charlton, June 26.

Ecophora subaquilella. One rather wasted specimen, among heather, on the moors at Woodhead, June 9.

Ecophora arietella. At Wickham, June 23 (rather wasted), from oaks.

Ecophora unitella. Not scarce in hedges, chiefly hawthorn, at Lewisham, July 28 to August 27.

Ecophora pseudo-spretella. Not scarce in London, July 13 to August 27: probably a general scavenger, like lacteella.

Ecophora fuscescens. Swarms in my hedges, July 28 to August 4: it probably feeds on rotten wood. When on the wing it much resembles tripuncta, having the same peculiar dancing flight.

Ecophora fusco-cuprea. Two, among grass on the downs, at Mickleham, July 9.

Æcophora Curtisella. At Mickleham, July 8 and 25: the specimens taken on the 25th were much wasted. One specimen of the typical insect, on palings at Lewisham, July 19; two specimens of the suffused variety, on palings at Lewisham, August 13 and 14: these were very fine.

Hyponomeuta plumbellus. Common in one buckthorn bush, August 16 to 27. I am still unable to clear up any of the disputed points about the other species of this genus.

Depressaria costosa. Among furze-bushes at Stoa's Nest, August 2, and among broom at Charlton, August 9.

Depressaria liturella. One, at Charlton, August 9.

Depressaria propinquilla. One, beat from a hedge at Lewisham, August 30.

Depressaria subpropinquilla. Taken in plenty by Mr. Douglas, at Folkstone, in September.

Depressaria Alstræmeriana. One, beat from a hedge at Lewisham, August 30.

Depressaria Hypericella. About the middle of May I found the terminal shoots of *Hypericum perforatum* screwed together by some larva: I suspected at once that this must be the long-wished-for *Hypericella*, yet it seemed to me strange—never having seen the perfect insect—that the larvæ should occur, and not very sparingly, as I soon discovered above a dozen plants that were attacked by them: these larvæ were then very young, and I probably lost many of them on that account; however, I succeeded in breeding five specimens, which made their appearance July 1, 2 and 11. Mr. Douglas also met with the larva on another species of *Hypericum*, at Wickham, and bred upwards of twenty specimens therefrom. I suppose most Lepidopterists will breed it for themselves next year.

Depressaria conterminella. Again bred in considerable plenty by Mr. Wing, from the osier.

Depressaria pulcherrimella. One, at Mickleham, from junipers, July 26.

Depressaria ultimella. One, from a hawthorn hedge at Lewisham, May 2.

Depressaria pastinacella. One, flying along a hedge at dusk, at Lewisham, April 29.

H. T. STAINTON.

Mountsfield, Lewisham,

October 10, 1849.

(To be continued).

Curious Habitat of Tinea ustella.—The habitat of this insect is an exceedingly singular one, being found in a coal mine about seven miles from this city, and at a distance underground varying from $\frac{3}{4}$ to $1\frac{1}{4}$ mile. My attention was first drawn to it through a friend,—Mr. McIntosh,—who, knowing that I was in the habit of collecting insects, stated, that having occasion frequently to go into the mines and examine the workings, he had, for some three or four years, observed a small fly flitting about. He had often tried to catch it with his hands, but was always unsuccessful. This made me anxious to ascertain what it really was; and having business with Mr. McIntosh a few days ago, I took with me some boxes and a small net, got him to accompany me, and in we went. We wandered about for a considerable time without success; and very coarse sort of work I found it, as from the lowness of the place I was forced to remain in a half-double position, and had to keep my head turned on

one side, with an *eye* to the roof, lest I should chance to run against some of the projections. At last, however, just as we were giving it up as a bad job, I captured one, and then another, and so on until I filled the whole of my boxes. They are very plentiful, and may be taken at all seasons. They are only found in places which have been *wrought out* and left for some time, and where the air is very bad, as it was with difficulty we could keep our lights burning. In no place where the miners were at work could we get the least trace of one, nor had they (the miners) ever observed one. These insects fly very quick: they never ventured to approach our lights,—in fact, they seemed not to be aware of the presence of such a thing. That they are bred there may be assumed from their numbers, as also from there being nowhere for them to enter except by the mouth of the mine, and at the distance stated above; yet upon what the caterpillar subsists I could not discover. They lurk amongst the pieces of *blaes* or schist which have been blown out and are there piled up in heaps on either side, as on moving them we saw (by the aid of our lights) several. Good specimens have a rich purple shade in some lights, and the *line* of a golden yellow.—*John Scott*; 86, *Sauchiehall Street, Glasgow, November 2, 1849.*

[In many of the continental mines luminous or phosphorescent thallogens occur in great abundance, and these would of course afford food to the larvæ of a *Tinea*. I shall be glad to hear whether any such vegetation exists in the coal mine in question. I shall be greatly obliged for specimens of the perfect insect to deposit in the cabinet of the Entomological Club, and also to hand to Messrs. Doubleday and Stainton, who are so laudably engaged in working out our Micro-Lepidoptera.—*Edward Newman.*]

Proceedings of the Entomological Society.

November 5, 1849.—G. R. WATERHOUSE, Esq., President, in the chair.

The following donations were announced, and thanks ordered to be given to the respective donors: Ten portraits of modern naturalists; presented by G. Ransome, Esq., of Ipswich. 'Kaferfauna der Preussischen Rheinlande,' vol. i. 8vo.; presented by M. Bach, the author. 'Insectes Coléoptères de la Sibérie Orientale nouveaux ou peu connus;' presented by M. le Comte Mannerheim, the author. 'Mémoires de la Société de Physique et d'Histoire Naturelle de Genève,' tom. xii. partie 1re; 'Observations Astronomiques faites dans 1847 et 1848, à l'Observatoire de Genève,' Supp. 1 et 2; presented by the Société de Physique et d'Histoire Naturelle de Genève.

Mr. Bond exhibited bred specimens of *Chilo gigantellus* (male and female), two singular varieties of *Nonagria Typhæ*, and three new *Tineidæ*.

Mr. Ingpen exhibited some fossil wings of insects, chiefly *Phryganææ*, from the insect-limestone of Gloucestershire.

Mr. Stainton exhibited *Argyresthia Spiniella*, *Zeller*, and *A. amiantella*, Z.? observing that in the latter the palpi were much longer than in *Ocnerostoma Pinianella*, which in appearance it much resembled: the former of these species was taken by Mr. Stainton, at Torwood, in Stirlingshire; the latter by Mr. Dunning, at Brandon. He also exhibited a leaf of the sallow rolled up by the larva of *Gracillaria stigmatella*; leaves of *Hypericum pulchrum* rolled up by *Gracillaria auroguttella*?; pupæ of *Lithocolletis Schreberella* in leaves of elm, and of *L. Alnifoliella*, six in one leaf of alder: he observed, that as alders grow in wet places, the leaves would fall in many instances into water, and the pupæ existing in them between the cuticles be destroyed, which would account for the comparative rarity of the perfect insect.

Mr. S. Stevens exhibited a living specimen of *Lamia textor*, found by Mr. Barton in an osier bed, near Bristol, and fed for two months on osier leaves.

Mr. W. W. Saunders exhibited some tobacco, imported in bales from South America, which had been fed upon by the larvæ of *Lasioderma testaceum*, *Steph.* He observed that only the thin portions of the leaf were eaten, and that the amount of damage done to the tobacco was considerable. It was noticed that the destructive qualities of this *Lasioderma* to capsicum and shumac had been exhibited to the Society in 1847, and that the species had a wide range of food.

Mr. Shepherd exhibited a long series of *Peronea tristana*, *Hub.*, bred from larvæ found on *Viburnum Lantana*. This species has been known in our collections under the names of *trigonana*, *plumbosana*, *Boscana* and *Logiana*, all of which it was now shown were but varieties of one species. It was also interesting to find that there was not among them any of the varieties of *ferrugana*, *W. V.* (*gnomana*, *Haw.*), which is considered on the Continent to be synonymous with *tristana*, *Hub.*

Captain Parry exhibited a box of splendid insects from Cayenne.

Mr. Douglas exhibited a fine *Deilephila Celerio*, found by a child in a garden at Folkestone; also several *Tineidæ*, beaten out of thatch in the neighbourhood of Folkestone: the most worthy of note were *Gelechia vilella*, *Depressaria rotundella*, *D. depressana*, *Fab.* (*Bluntii*, *Curtis*), *D. ultimella* and *subpropinquella*.

Mr. Westwood exhibited, from the collection of Mr. Melly, some small *Coleoptera* from Melbourne, South Australia, including ten species of *Pselaphidæ*, one of which appeared to be of the genus *Articerus* of Dalman, said by that author to have been found in amber, and remarkable for having only one joint to the antennæ: the present specimens were found in the centre of nests of black ants, three to six at a time, but not frequently occurring. Mr. Westwood also exhibited, from Mr. Melly's collection, two *Goliath* beetles from Tropical America: they were two distinct species of the genus *Dicranorhina*, closely resembling each other, and hitherto confounded under the name of *G. micans*, *Drury*. Mr. Westwood read brief discriminating descriptions of each, the one retaining *Drury's* name (*micans*), the other he proposed to call *cavifrons*. He also exhibited *Ptinidæ*, found in a barrow 1400 years old, by Albert Way, Esq., of Reigate: they were observed on bones in a covered vase, which again was enclosed in another vase covered with a stone, and under a quantity of earth: he inclined to believe that they had not penetrated through these coverings, but had been deposited with the bones.

Mr. Douglas read a continuation of his memoir on the genus *Gelechia* of Zeller.

Mr. Stainton read a paper on the synonymy of *Elachista æratella* of Zeller.

The President said he was instructed to offer as a prize the work of Fischer von Röslerstamm, on *Lepidoptera*, for the best monograph of some genus of *Tortrices*, subject to the following conditions: 1. The prize to be awarded to the writer of the best monograph of some genus of *Tortrices* (the genus not to contain less than twelve species). 2. The monograph to be forwarded to the President of the Entomological Society, not later than April 15th, 1850. 3. The President to appoint three entomologists (who are not contending for the prize) to act as examiners, and to decide which of the monographs sent in is the best. 4. Their decision to be announced at the May meeting of the Entomological Society.

The Secretary announced that vol. v. part 8 of the Society's Transactions was on the table.—*J. W. D.*

Proceedings of the Zoological Society.

NOTE.—No Meetings of this Society have been held since the last reported in this Journal.

November 1.—JOHN EDWARD GRAY, Esq., in the chair.

Alexander Kerr, Henry Moseley, John Beaumont, and C. A. Law, Esqrs., were elected Fellows.

The Report of the Council stated that the visitors to the gardens in the Regent's Park, during the last three months, amounted to 50,064 in number, presenting a total increase on the year, as compared with 1848, of 24,564; and as compared with 1847, of 72,685. The Report also announced that twenty-eight donations of books had been received in the library, and that several interesting and valuable additions had been made to the menagerie by Lieut.-Colonel Messiter (28th regiment), Capt. Worth, R.N., W. D. Christie, Esq., Lieut. Tyler, R.E., the Marquis of Salisbury, the Marchioness of Westminster, W. Danford, Esq., Lieut. Cave (53rd regiment), T. Fellows Reade, Esq., and other friends of the Society.

The new reptile house and the new building appropriated to ostriches form an extensive addition to those portions of the menagerie which may be visited throughout the winter without exposure to the weather.

The collection of reptiles continues to receive accessions, and among the latest are fine examples of two well-marked varieties of the cobra di capella (*Naia tripudians*) from India.

The most interesting bird obtained since the last meeting is the Abyssinian pin-tado (*Numida ptilonorhyncha*), now for the first time imported into Europe, for which the Society is indebted to the Hon. C. A. Murray. A pair of *Ocyphaps loquax* have hatched three broods in the gardens during the past summer, and there appears to be every prospect of acclimatizing this beautiful species as completely as has been the case with *Turtur risoria*. Another most interesting incident has been the production of a hybrid between the two species of crowned pigeon (*Goura coronata* and *G. Victoriae*): this is the first recorded instance of either of them breeding in Europe.

The menagerie on the last day of October contained upwards of 1400 animals; and the Society continues to receive favourable assurances of support from an increasing band of foreign correspondents. The last letter which had reached the Society was due to the influence of Rear-Admiral Bowles, V.P., and contained the gratifying intelligence that Capt. Keppel, of H.M.S. Meander, had shipped a young *Mias uran-utan*, from Singapore, on the 6th of September last.—D. W. M.

Proceedings of the Microscopical Society of London.

November 14.—J. S. BOWERBANK, Esq., F.R.S., &c., in the chair.

Mr. Leonard read a paper on the growth of the *Glumaceæ*, and exhibited specimens of grasses in a growing state under the microscope: it appeared that the elongation of the blade is due to the accession of cells of the radical extremity thereof, by which accession the distal extremity was forced onwards.

Mr. Shadbolt read a paper on the siliceous lorice of *Arachnoidiscus*.

APPENDIX

TO

THE ZOOLOGIST

FOR 1849.

With a view of giving to Monographs and other papers of a scientific and technical character that prominence which all careful and elaborate productions deserve, and at the same time of avoiding all clashing between such papers and the more amusing details of the economy of living animals and the record of captures,—I have concluded in the present Volume to separate the popular from the scientific communications, and to publish the latter with a different heading and paging in the form of an Appendix.—E. NEWMAN.

ART. I.—*A Monograph on the European Species of the Genus Argyresthia.*
By H. T. STAINTON, Esq.

I WILL first say a few words as to my reason in here departing from my previous plan of only describing the British species: in the first place, I have not the slightest doubt that all the species here described occur in this country; and secondly, by giving the distinguishing characters of each, as well as their habits (where known) and period of flight, I surely am conferring a great boon upon the provincial collectors of Micro-Lepidoptera, who have not the same means of access to continental works or continental specimens which metropolitan entomologists enjoy. Many species only require to be looked for in order to be taken, and as long as we are ignorant of the species and their habits we do but retard the period of their discovery.

I shall not give a detailed account of the generic characters: not having examined the insects with a microscope, I do not feel qualified to enter into any of the minute distinctive characters. Zeller has occupied three pages in the '*Linnæa Entomologica*' (vol. ii. pp. 236—239) with this portion of the subject, and to his valuable paper I must refer such of my readers as feel curious on the matter.

The following superficial characters may perhaps prove of some use:—Head clothed with erect hairs; face smooth; palpi drooping; antennæ (shorter than the anterior wings) with the basal joint enlarged; anterior wings long and narrow; posterior

wings somewhat lanceolate, but rather rounded at the anal angle (thus, broader than in *Lithocolletis*).

The perfect insect has a peculiar way of sitting (only using four feet), with its head inclining towards the object on which it is resting at an angle nearly of 45° .

The larvæ of those species of which the transformations are known "feed on the leaf-buds and flower-buds, and have the head and prothorax rather hard, so as to fit them for boring the buds. And the transformation takes place," according to Zeller, "more rarely in the habitation of the larva than in a place of concealment behind bark, or among moss, or in the earth."

It is not very easy to group these insects naturally. I have followed Zeller's arrangement,* except in the position of *Andereggiella*, which appeared to me more allied to *curvella* (*cornella*, Z.) than to *ephippella* (*pruniella*, Z.)

* Zeller's arrangement is as follows:—

"I. Palpi graciles, squamis appressis. Alæ anteriores lævigatæ, vitta dorsali alba, aut unicoloris. Venæ ex cellulæ discoidalis parte postica novem oriuntur. Oviductus ♀ plerumque exsertus.

A. Alæ anteriores vitta dorsali alba, variisque signis ornatæ.

a. Vitta dorsali alarum anteriorum semel tantum interrupta (*Argyresthia* pr. *Ismene*, St.)

1. *Andereggiella*, *F-v-R*. 2. *pruniella*, *L*. 3. *nitidella*, *F*. 4. *spiniella*, *F-v-R*. 5. *fagetella*, *Mor*. 6. *conjugella*, *Z*. 7. *pulehella*, *Lienig*. 8. *tetrapodella*, *L*. 9. *glaucinella*, *Z*.

b. Vitta dorsali al. ant. bis vel sæpius interrupta.

a. Minores.

10. *fundella*, *Tr*. 11. *retinella*, *Z*. 12. *abdominalis*, *Z*. 13. *dilectella*, *Z*.

β. Majores (*Argyrosetia*, *Steph*.)

14. *cornella*, *F*. 15. *sorbiella*, *Tr*. 16. *pygmæella*, *H*. 17. *Gædarta*, *L*. 18. *Brockeella*, *H*.

B. Alæ anteriores unicoloris. Venæ ex cellulæ discoidalis parte postica octo oriuntur. Femina plerumque mare minor (*Blastotere*, *Ratzeburg*).

19. *arceuthina*, *Z*. 20. *certella*, *Z*. 21. *præocella*, *Z*. 22. *illuminatella*, *F-v-R*. 23. *glabratella*, *Z*. 24. *amiantella*, *Kollar*.

II. Palpi breviusculi, incrassati, pilosuli. Alæ anteriores pulverulentæ, fascia ante medium signatæ. Cellula discoidalis postice venas octo sexve emittit. Oviductus ♀ absconditus (*Cedestes*, *Z*.)

25. *Gysseleniella*, *Kuhlw*. 26. *farinatella*, *Z*."

Of these species, six—viz. *pulehella*, *sorbiella*, *illuminatella*, *glabratella*, *amiantella* and *Gysseleniella*—have not yet been detected in this country; on the other hand, we have three species in this country not known to Zeller,—viz. *purpurascens*, *semi-fusca* and *literella*,—though of this latter I have considerable doubts whether it be truly distinct from *Gædarta*.

Sp. 1. EPHIPPELLA, *Fabricius* (fig. 1).

Alucita ephippella, Fabr. Ent. Syst. iii. ii. 330, N. 3.

Ypsolophus ephippium, Fabr. Suppl. 509, 18.

Tinea pruniella, Hubn. 175.

Ecophora pruniella, Duponchel, xi. 454, pl. 305, f. 1.

Argyresthia pruniella, Zeller, Isis, 1839, S. 204, 1 var. *b*. Linn. Ent. ii. 243.

Ederessa tetrapodella, Stephens, Illust. iv. 249. Wood's fig. 1299.

Tinea cornella, Scopoli? 253, 656.

Expansion of the wings $4\frac{1}{2}$ — $5\frac{1}{2}$ lines. Head white. Face white. Palpi white. Antennæ white, annulated with black. Thorax white. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with black. Anterior wings tawny-brown, with the inner margin white to the middle of the wing, where the white portion is intersected by a brown curved fascia reaching to the costa; this fascia is much the darkest on the inner margin; beyond this fascia the inner margin is again white to the anal angle, and immediately above this white portion is a pale yellow patch: the basal portion of the wing is darkest immediately above the white inner margin, and there is a slight projection in it towards the inner margin a little before the dark fascia: the costa is very delicately spotted with white, and beyond the fascia are three or four larger spots: hinder margin and cilia dark tawny. Posterior wings grayish, with paler cilia.

The other species of the genus with which this might be confounded are *nitidella*, *albistria*, *semitestacella*, *semifusca* and *spinosella*.

From *nitidella* it is, however, readily distinguished by the form and direction of the fascia, which in that species, instead of touching the costa, is diverted towards the apex of the wing, as far as which it extends. From *albistria* it is distinguished by its larger size and greater number of markings, there being but a very slight appearance of a fascia in *albistria*. From *semitestacella*, which very much resembles *albistria*, except in size, it is readily distinguished, this insect being about half as large again as *ephippella*. From *semifusca* it may readily be distinguished by the colour of the anterior wings, which are of a glossy dark purple in *semifusca*, instead of being tawny-brown, as in *ephippella*. From *spinosella*, which is a rather smaller insect, it may also readily be distinguished by the colour of the anterior wings; these in *spinosella* are purplish (except on the costa, at the base, where there is an ochreous patch), and the direction of the fascia is in *spinosella* much straighter than in *ephippella*.

This species is not uncommon in June and July, but generally occurring in company with *nitidella*, which it much resembles, it is apt to be overlooked. It frequents hedges and gardens, and probably feeds on several plants, such as whitethorn, blackthorn, plum, &c. In the North of England it appears commoner than in the South. When at Sheffield, in July last, I found it more plentiful than *nitidella*.

The Linnean description of *pruniella* is so exceedingly vague, and says nothing about the direction of the fascia (the words are "*Alæ superiores griseæ; area fronte ad apices fere alarum longitudinalis communis alba, medio interrupta,*") that I should have been unwilling to have retained the name at any rate; but an inspection of the Linnean cabinet showed me two different species, *semifusca* and *albistria*, both labelled *pruniella*, and left me no choice but to sink the name. I was then in hopes that I should have been able to have called this species *pruniella* of Hubner, whose figure is so very good that it is a great pity that an older, but less satisfactory, name should

supersede it; but the Fabrician description of ephippella leaves no doubt on my mind that this species was intended: the words are "Alæ pallide auratæ vitta lata, communi, dorsali, nivea, in qua fascia lata aurea." Fabricius gives as a synonyme *Tinea pruniella*, *W. V.*; but it appears, from a remark of Zeller's, that in Schiffermüller's collection two species—*pruniella*, *H.*, and *spiniella*, *F-v-R.*—are mixed and labelled *pruniella*.

In Treitschke we find an *Æcophora pruniella*, in the diagnosis of which there is a manifest error,—for 'capite thoraceque fuscis' read 'niveis:' this is not important, as in his description the error is not repeated: the species he describes is most probably *nitidella*, as he talks of "a fascia which does not reach the costa:" he however alludes to varieties in which the colour "of the anterior wings is violetish;" these probably belong to *ephippella*.

Scopoli's description of *cornella* is much too vague for his name to be retained.

Sp. 2. *NITIDELLA*, *Fabricius* (figs. 2, 3).

Tinea nitidella, Fabr. Ent. Syst. iii. ii. 291, N. 16.

Argyresthia nitidella, Z., Linn. Ent. ii. 250.

Erminea pruni, Haworth, Lep. Brit. 516, 15

Ederessa pruniella, Stephens, Illust. iv. 249. Wood's fig. 1298.

Argyresthia pruniella, Z., Isis, 1839, S. 204, 1 var. *a.*

Argyresthia maritella, F-v-R. in litt.

Tinea tetrapodella, Linn.? Syst. Nat. i. ii. 890, 388.

Var. *b.* *Erminea ossea*, Haworth, Lep. Brit. 517, 19.

„ *Ederessa ossea*, Steph. Illust. iv. 250. Wood's fig. 1304.

„ *Argyresthia denudatella*, F-v-R. in litt.

Expansion of the wings $4\frac{3}{4}$ — $5\frac{1}{2}$ lines. Head white. Face white. Palpi white. Antennæ white, annulated with black. Thorax white, with the sides tawny. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with black. Anterior wings silvery or pale tawny, the inner margin brilliant white, interrupted near the anal angle by a fuscous lunule, which terminates in the hinder margin near the costa; in the middle of the base of the wing is a brown streak, which terminates rather before the middle of the wing; the colour of the costal portion of the wing varies from pale tawny to pale cream-colour: on the costa itself is a brown spot about the middle, and four or five others towards the apex: hinder margin and cilia deep fuscous. Posterior wings griseous, with paler cilia.

Var. *b.* has the anterior wings of a uniform pale cream-colour, with the inner margin white, and with a few dark spots on the costa at the apex, but with hardly any trace of the other markings of the species.

The direction of the brown fascia (which in this insect is not really a fascia, but, to speak more correctly, an arch or lunule) sufficiently distinguishes this from all the other species of the genus, except the following, but from that this is distinguished by the paler colour of the costal portion of the anterior wings, and by the inner marginal portion expanding just before the fascia, which in *purpurascetella* it does not.

This is by far the most abundant species in the genus, and from the end of June to the middle of August is a perfect pest to the collector. Zeller says that "the larvæ live in multitudes at the beginning of May, in the terminal buds of whitethorn

bushes, and without doubt also on species of plum and pear. When full-grown they descend by a thread to the earth, and there change to the pupa under moss and dried leaves."

Fabricius's description, "*Alæ anticæ argenteæ nitidæ, lineola baseos lunulaque communi fuscis*," leaves no doubt of this being his insect; and I am rather of opinion that it is also the tetrapodella of Linneus, whose words, "*Tinea grisea, linea longitudinali nivea, lunula fusca postice dissecta*," are almost identical with those of Fabricius, the greatest discrepancy arising from his insect being gray and that of Fabricius silvery; but as the species varies from pale tawny to silvery-white, that is of little importance. The "*lunula fusca*," the character of the species, which distinguishes it from all its congeners except *purpurascetella*, must prevent the Linnean description from applying to any other, and it certainly cannot apply to *spinosella*, which Zeller unhesitatingly calls the tetrapodella of Linneus, but unfortunately states no reason for so doing.

At the same time, while giving my reasons for considering this species the tetrapodella of Linneus, I am unwilling to increase the complexity of the nomenclature in this genus, by at once superseding the Fabrician name; but I think it probable that it must eventually sink and the Linnean name be retained. There is unfortunately no specimen of tetrapodella in the Linnean cabinet.

Sp. 3. *PURPURASCENTELLA*, *Stainton*.

Expansion of the wings 4—5 lines. Head white, with a few gray hairs. Face white. Palpi whitish. Antennæ white, annulated with dark fuscous. Thorax white, with the sides purplish fuscous. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with fuscous. Anterior wings purplish fuscous, inclining to pale ochreous on the costa; the inner margin is white to the anal angle, interrupted rather beyond the middle by a curved dark fascia, which is hardly traceable across the wing, yet it appears to curve towards the apex as in the preceding species; the basal portion of the white inner margin does not expand just before the fascia, as in *nitidella*, but is continued almost straight to the fascia; a dark streak proceeds from the base, extending about a third of the wing, as in *nitidella*: the costa is delicately spotted in its whole length, but towards the apex are two larger pale spots, as in *nitidella*; beyond the fascia the colour of the wing is deeper than towards the base: cilia purplish fuscous. Posterior wings grayish, with paler cilia.

This species approximates so closely to the preceding that I at first took one of my specimens for a variety of it: it is, however, distinguished by the different ground-colour of the anterior wings, and by the white inner margin not expanding before the fascia. In colour it somewhat resembles *spinosella* and *semifusca*, but differs from them in the extremely curved position of the fascia; besides which it has not the ochreous base of *spinosella*, nor the rich concolorous appearance of *semifusca*.

My finest specimen (that described) I beat out from among birches, along with *retinella*, near Carron, Stirlingshire, on the 18th of July. My other specimen I beat out of a hawthorn-hedge, at Sheffield, on the evening of July 22nd, along with *nitidella* and *ephippella*: this specimen is much smaller than the one described and somewhat wasted, and on the left wing the fascia does not touch the inner margin.

Sp. 4. SEMITESTACELLA, Curtis (fig. 4).

Ederessa semitestacella, Curtis, Brit. Ent. pl. 719. Steph. Illust. iv. 249.

Ederessa semipurpurella, Curtis.

Ederessa albistria, Wood's fig. 1297.

Argyresthia spiniella, Zeller, Isis, 1839, S. 204, 3. Linn. Ent. ii. 254.

Expansion of the wings 5—6½ lines. Head white, with a few yellowish hairs. Face white. Palpi yellowish. Antennæ white, annulated with black. Thorax white, with the sides tawny. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with black. Anterior wings tawny, with a purple tinge in certain lights; the inner margin white to near the anal angle, where it is interrupted by a deep tawny spot, which joins the tawny portion of the wing, but is not visible across it as a fascia; the breadth of the white inner margin is about a third of the wing; on the costa, near the apex, are three or four short darker streaks: cilia tawny gray. Posterior wings fuscous, with paler cilia.

This insect considerably resembles *albistria*, but its size is quite sufficient to distinguish it readily, it being fully half as large again as *albistria*.

I have never met with this species myself: it has been taken by Mr. Weir at Lewes, from beech; and by Mr. Bedell at Mickleham, in July.

There is some little room to doubt whether our species be the *spiniella* of Zeller: he says that the colour of the anterior wings is much darker than in *pruniella* (*ephippella*), whereas in our species it is very nearly the same. Further, he says, "the ground colour of the small *fagetella* (*albistria*) is much paler:" now it is almost invariably darker than in *semitestacella*.

Sp. 5. ALBISTRIA, Haworth.

Erminea albistria, Haworth, Lep. Brit. 517, 18.

Ederessa albistria, Steph. Illust. iv. 248.

Ederessa semitestacella, Wood's fig. 1301 (bad).

Argyresthia fagetella, Zeller, Isis, 1839, S. 204, 2. ° Linn. Ent. ii. 256.

Cecophora fagetella, Duponchel, Sup. iv. 484, pl. 87, f. 11.

Expansion of the wings 4—4½ lines. Head white, or yellowish (see var. *b*). Face white. Palpi white. Antennæ white, annulated with fuscous. Thorax white, with the sides ochreous. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with fuscous. Anterior wings ochreous, with more or less of a purple tinge; the inner margin narrowly white, interrupted rather beyond the middle by a darker ochreous patch, which is not, however, continued across the wing as a fascia; on the costa are a few dark spots, and near the apex two or three short white streaks, but these costal markings are only visible in very few specimens: cilia fuscous or purplish. Posterior wings grayish, with paler cilia.

Var. *b*. has the head, face and palpi pale luteous, which colour also extends over the white portion of the thorax and over the white portion of the inner margin.

The plain concolorous appearance of this insect readily distinguishes it from all

allied species except the preceding, but it differs from that in being little more than half the size.

I have repeatedly taken this species out of hedges (sometimes I have beaten it from oaks, and one or two from salallows), from the middle of June to the middle of August: the variety *b.* has always occurred along with the typical specimens; generally if I took four specimens one of them would have a yellow head. I was at first inclined to think the variety *a.* a distinct species, but am now fully satisfied that it is merely a variety.

A specimen of this insect and one of *semifusca* are in the Linnean cabinet labelled *pruniella*. Zeller makes no mention whatever of the variety *b.*, with the head, thorax and inner margin of the anterior wings luteous; hence I suppose this variety has not occurred on the Continent: there can be no possible doubt, I think, that this is really his species.

Sp. 6. *CONJUGELLA*, Zeller (fig. 5).

Argyresthia conjugella, Zeller, Isis, 1839, S. 204, 4. Linn. Ent. ii. 258, pl. 2, f. 3.

Ederessa semifusca, Steph. Illust. iv. 248? Wood's fig. 1295.

Expansion of the wings 5—6 lines. Head yellowish. Face yellowish. Palpi yellowish. Antennæ whitish, annulated with black. Thorax yellowish. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with black. Anterior wings purplish fuscous, with the inner margin whitish to beyond the middle, where it is interrupted by an oblique deep fuscous fascia, which extends to the costa; beyond this the inner margin is again whitish to the anal angle; the costa is very delicately spotted alternately with deep fuscous and whitish, and about the middle is a very conspicuous larger deep fuscous spot; towards the apex is a larger whitish spot, rather hooked; the dark portion of the wing at the base projects into the whitish inner marginal portion, and then reverts upwards rather more than the previous deflexion, so that the pale inner margin is broadest immediately before the fascia; at the termination of the pale inner margin, at the anal angle, is a distinct deep fuscous spot: cilia purplish fuscous. Posterior wings griseous, with paler cilia.

The yellow head and thorax readily distinguish this insect from all its congeners of equal size, except perhaps *glaucinella*, yet that is considerably smaller and the colour of the anterior wings is totally different.

Apparently a scarce species: I am not aware that I ever met with it myself: Mr. Bedell took a few specimens at Dulwich Wood, on the 4th of June last.

Zeller says of it, "This still little-known species is abundant at Reichstadt and Nixdorf, in Bohemia, in May and autumn, on the wild service and blackthorn bushes, according to Fischer-v-R.; and I myself beat a very beautiful female, on the 7th of July, 1835, on the fortifications at Glogau (where no *Sorbus* or *Prunus* grows), from the leaves of a young elm. In Livonia, according to Madame Lienig, the species flies in May, June and August."

In giving the *semifusca* of Stephens as a doubtful synonyme I may have done wrong: this species is not described in Stephens at all; but no person acquainted with the mode in which most of Mr. Stephens's descriptions are composed can fail to see

that this is the species he intended. The description in the 'Illustrations' is composed of Haworth's description of *semifusca* (the *semipurpurella* of Stephens), with the addition of a large "trigonal white spot near the apex and a blackish one in the middle;" but that does not constitute the description of *conjugella*, for the inner margin is left "broadly white" instead of being yellowish. I believe the *pulchella* of Zeller must come very near Mr. Stephens's description of *semifusca*, as it possesses the white inner margin of Haworth's *semifusca*, and the apical trigonal white spot of *conjugella*: if so, Mr. Stephens has been fortunate in prophetically describing, in 1834, an insect which in 1848 we have yet to discover.

Sp. 7. *SEMIFUSCA*, Haworth (fig. 6).

Erminea semifusca, Haworth, Lep. Brit. 517, 17.

Ederessa semipurpurella, Steph. Illust. iv. 249. Wood's fig. 1300.

Expansion of the wings 5—6 lines. Head white. Face white. Palpi whitish. Antennæ white, annulated with black. Thorax white, with the sides dark purple. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with black. Anterior wings of a glossy dark brownish purple, with the inner margin snow-white to near the middle of the wing, where it is interrupted perpendicularly by the commencement, as it were, of a deep purple fascia, which, however, is not visible after it meets the dark portion of the wing; beyond this the inner margin is again white to the anal angle: on the costa are three or four conspicuous white spots near the apex (none of them so large as the hooked one in the preceding species), and from the base to beyond the middle are several smaller ones; at the base itself a slight ochreous streak is visible in certain lights: cilia deep glossy purple. Posterior wings griseous, with paler cilia.

This species differs from *semitestacella* in being smaller, in the anterior wings being of a dark purple, instead of tawny with a slightly purplish tint, and in having distinct white spots on the costa, which in *semitestacella* are wanting. It differs from *conjugella* in having the dark portion of the anterior wings of a more uniform and more purplish colour, in the colour of the head and thorax being white instead of yellowish, and in the absence of the large hooked white spot on the costa near the apex. From *pulchella*, which it must very much resemble, it also differs in not having a large hooked white mark on the costa near the apex. It differs from *spinosella* in the anterior wings being longer and without the *distinct* ochreous patch at the base, by which the latter is so easily distinguished.

I believe this species is not common in collections: its late period of flight (the beginning of August) probably causes it to be much neglected, as at that time wasted specimens of *nitidella* abound in every hedge. The hedges from which I have obtained it are of mixed growth, so that I can say nothing as to what may be its food.

This species is not known on the Continent, unless indeed it be the *spiniella* of Zeller, which I have given as a synonyme of *semitestacella*. The insect Zeller describes appears to be too pale (not sufficiently purple) for this, though somewhat too dark for *semitestacella*. It may be a species unknown to us.

Sp. 8. PULCHELLA, *Lienig*.

Argyresthia pulchella, *Lienig*, *Isis*, 1846, S. 293, 4. *Zeller*, *Linn. Ent.* ii. 261.

"Pulchella is smaller and broader winged than conjugella, of the size of tetrapodella. Head, base of the antennæ and palpi snow-white; antennæ annulated, white and brown. Legs more finely marked than in conjugella.

"Anterior wings violet-brown, with darker patches; as such the bordering of the hinder part of the snow-white inner margin is conspicuous; the white inner margin forms a streak which expands posteriorly, and is then by the ordinary fascia cut off straight and perpendicularly: beyond this fascia, which cannot be traced more than half across the wing, there is no other pale patch, but only some white scales along the hinder margin. On the costa, in the middle, are white spots, and before the apex a white hook, the end of which is turned very obliquely inwards; beyond it, thus nearer the apex of the wing, is still a very pale and much finer streak, to be observed in the costal cilia: cilia, at the apex of the wing, dark brown, palest in the middle, the upper part gray-brown.

"The costal hook is very distinct on the violetish brown-gray under-side: the costa has white spots, and the inner marginal streak shows through very faintly.

"Posterior wings gray, with a violet tint; cilia brownish gray, at the base rather yellowish.

"My single female specimen, the left wing of which is rubbed, I took for conjugella; the sight of Madame Lienig's very beautiful specimen convinced me that both were the same, and a truly distinct species."

I have not yet seen this species, and am not therefore aware that it has occurred in this country; but as it most probably will be discovered, I make no apology for introducing Zeller's description of it here, as from that the fortunate captor will at once be able to name his insect.

Zeller's own specimen was "taken near Gastein, on the 12th of August."

Sp. 9. SPINOSELLA, *Stainton* (fig. 7).

Erminea mendica, *Haworth*, *Lep. Brit.* 517, 16.

Ederessa mendicella, *Steph. Illust.* iv. 248. *Wood's fig.* 1296.

Ecophora cæsiella, *Treitschke*, ix. 2, 157 (*Diagn.*)

Ecophora tetrapodella, *Duponchel*, xi. 457, pl. 305, f. 2.

Argyresthia tetrapodella, *Zeller*, *Isis*, 1839, S. 205, 5. *Linn. Ent.* ii. 262.

Tinea cæsiella, *Hubner*, f. 360 (260?)

Expansion of the wings $4\frac{1}{2}$ — $5\frac{1}{4}$ lines. Head white. Face yellowish white. Palpi yellowish white. Antennæ white, annulated with black. Thorax white. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with black. Anterior wings purplish fuscous, with the inner margin white, interrupted rather beyond the middle by a dark purplish brown fascia, which cuts it off perpendicularly; the fascia afterwards curves a little, but terminates on the costa; immediately beyond this fascia the white inner margin is rather broader than before it, but it terminates at the anal angle; at the base of the wing the whole of the dark portion of the wing is ochreous,

which colour extends along the costa nearly to the middle of the wing, and is spotted with purplish fuscous: on the costa are two conspicuous white spots, one on each side of the dark fascia; beyond these are two or three smaller ones near the apex: cilia fuscous. Posterior wings griseous, with paler cilia.

This species is most readily distinguished from all its congeners by the ochreous base of the purple anterior wings, and from *semifusca* it is further distinguished by the two conspicuous white spots near the middle of the costa, which in that species are entirely wanting.

It appears before any other of the hedge-feeding *Argyresthiæ*, and seems most attached to blackthorn (*Prunus spinosa*). I met with it this summer at the end of May, nearly a fortnight before *ephippella* or *nitidella*. Like its congeners it keeps out a long while, but the specimens taken after the middle of June are rarely fine.

Zeller states that according to Fischer von Röslerstamm it is "abundant on sloe-bushes at Reichstadt, in Bohemia, in May and August," but Zeller himself has never met with the second brood, and I believe it has not been observed in this country.

The mendicella of Hubner (Tin. 179) is the *Tinea ferruginella* of the Continent,—*Tinea ustella* of Haworth and Stephens.

I have given under *nitidella* my reasons for not agreeing with Zeller and Duponchel in considering this species the *tetrapodella* of Linneus; the fascia in this species is almost straight,—how then can it be "*lunula fusca*?" It is unfortunate that Zeller has given no reason for naming it *tetrapodella*. It is almost unnecessary to remark here that Zeller is quite incorrect in giving the *tetrapodella* of Stephens as a synonyme for his own *tetrapodella*, though, as Stephens has only copied the Linnean description, it is questionable how he could have done otherwise; yet this species being undoubtedly the mendicella of Stephens, it cannot also be his *tetrapodella*, which—according to his cabinet—is the *pruniella* of Zeller, though, as the description of Linneus in no way applies to that species, it is a pity it was inserted in the 'Illustrations.'

Sp. 10. *GLAUCINELLA*, Zeller (fig. 8).

Argyresthia glaucinella, Zeller, Isis, 1839, S. 205, 6. Linn. Ent. ii. 265.

Expansion of the wings $4\frac{1}{2}$ — $5\frac{1}{4}$ lines. Head yellowish. Face yellowish. Palpi yellowish. Antennæ yellowish, with hardly any appearance of annulations. Thorax yellowish, with the sides bronze-coloured. Abdomen fuscous. Legs tawny-fuscous. Tarsi fuscous, with paler spots. Anterior wings of a resplendent bronze-colour, with the inner margin pale yellowish, very narrow at the base, but widening out suddenly a little before the middle, till it occupies nearly half the wing; here it is interrupted perpendicularly by a dark fascia, which can generally be traced across the wing to the costa, being, however, least distinct in the middle of the wing; beyond this the inner margin is again broadly pale to the anal angle: two pale spots are observable on the costa immediately beyond the dark fascia: cilia dark fuscous. The pale portion of the inner margin is marked with numerous, short, transverse, bronze-coloured streaks: this character at once distinguishes it from all the other species belonging to this section. Posterior wings grayish, with a violet tinge in certain lights; cilia paler.

This species is at once distinguished by the colour of the head from all the other species of this group, except *conjugella* and the var. *b.* of *albistria*: from the latter the

colour of the wings would readily distinguish it, and from both the small transverse dark streaks on the inner margin is a certain point of difference.

This species has been taken by Mr. Bedell on fences near Camberwell, and by Mr. Sircom among oaks near Brislington, in June. It is apparently rare. Zeller says of it, "As yet I have only taken this species in a thicket near Glogau, composed of sloe, oak and aspen bushes, on the 17th and 18th of June, 1834. Since then I have taken only a wasted male, July 24th, 1842. It feeds probably on blackthorn, like *tetrapodella*, and as it flies with that species it is readily overlooked."

Sp. 11. *FUNDELLA* (*Tischer*), *F-v-R.*

Æcophora fundella, *F-v-R.*, *Beitrage*, pl. 15, f. 4, S. 24. *Treitschke*, x. 3, S. 211 and 294. *Dup.* xi. 463, pl. 305, f. 6?

Argyresthia fundella, Zeller, *Isis*, 1839, S. 205, 7. *Linn. Ent.* ii. 267.

"One of the smallest species: most like *retinella*; however it has much darker brown annulated antennæ, and on the anterior wings the small streaks are thickest on the margins, and on the inner margin two appear from their dark colouring as spots: with *retinella* most of the streaks are congregated on the disk behind the middle of the wing, and neither on the inner margin nor on the costa do any appear as spots.

"Head and thorax snow-white; the hairs on the head reach nearly to the end of the basal joint of the brown and white annulated antennæ. Face shining. Palpi as long as the face, whitish. Feet satiny-whitish; the fore feet with the upper side of the tibiæ and tarsi brown. Abdomen whitish gray, paler beneath.

"Anterior wings rather broad, shining white, almost snow-white, with numerous undulating, short, transverse streaks, of a yellowish brown colour, almost united together like net-work, which appear darkest and most distinct on the costa. On the inner margin there generally appear, as spots, one in the middle and another thicker at the anal angle, and sometimes even another at the lower half of the hinder margin. At the apex of the wing some black atoms unite, and form a dot or short streak (like a trefoil leaf, as shown in *F-v-R.*'s figure, it does not appear in any of my fifteen specimens, of which one came from *F-v-R.* himself). The cilia are yellowish brown at the apex of the wing, always paler further towards the anal angle; still paler on the costa.

"Under-side yellowish brown, with faint light marks.

"Posterior wings rather broad, pale gray, with a faint pearly gloss.

"*Fundella* occurs in Bohemia, at Reichstadt; in Silesia, in mountainous districts (at Probsthainer Spitzberg in June, at Reinerz in July); in Prussia, at Dantzic; in Livonia, at Kohenhusen, abundant. It is beaten from the boughs of pines, on which doubtless the larva feeds. Near Glogau it has not yet occurred, and appears—from the scarceness of these trees in our woods here—not indigenous; the statement in *F-v-R.* and *Tr.* rests upon a mistake with *retinella*." And I would add that *Duponchel*'s figure appears to me to represent *retinella*.

I have not yet been able to meet with a British specimen of this insect. I thought at the time I began this paper that there were two specimens in Mr. Desvignes' rich collection, but on a minute examination of the individuals in question I am satisfied that they are only *retinella*; at the same time I think it extremely probable that this

species is contained in some of the numerous collections of Lepidoptera scattered throughout the country, and would advise each collector to examine his own specimens.

Sp. 12. RETINELLA, Zeller (fig. 9).

Argyresthia retinella, Zeller, Isis, 1839, S. 205, 8. Linn. Ent. ii. 269.

Ederessa ocella, Steph. Illust. iv. 251 ?

Expansion of the wings 5 lines. Head white. Face whitish. Palpi whitish. Antennæ white, annulated with fuscous. Thorax white. Abdomen fuscous. Legs whitish. Tarsi whitish. Anterior wings white, with numerous short, brown, transverse streaks; at the base of the wing, near the costa, arises a fuscous patch, which extends to the middle of the wing, where it meets a fuscous fascia; this fascia generally touches the costa, but is never continued to the inner margin; beyond this fascia are several short streaks on the costa, and another fuscous patch, touching neither the costa nor the inner margin, extends to the apex of the wing, terminating there in a black spot: cilia pale fuscous, with a darker line externally, and another nearer the margin of the wing. Posterior wings fuscous, with paler cilia.

This species, till within the last two years generally considered rare, is far from uncommon in the South of England, and in Scotland is exceedingly plentiful among birches, in July. Zeller states that "this species flies near Glogau, in clear leafy woods, from the middle of June into July: here it frequents the lower boughs of the willow, on which the larva doubtless feeds, probably at the same time as *pygmaella*. They generally fly only towards evening. At the Remerz Seefeldern I took four beautiful females, on *Salix caprea*, July 29th."

The characters which distinguish this from the preceding are thus given by Zeller: "This is most readily distinguished from the preceding by the aggregation and union of the transverse streaks on the disk, beyond the middle of the anterior wings, whilst in *fundella* the streaks are fewest on the disk and are congregated on the margins."

My reason for rejecting Mr. Stephens's name of *occella*, by which this insect has hitherto gone, is the insufficiency of his description, which would apply either to *fundella* or *retinella*: the specimens in his collection appear wasted specimens of *retinella*.

Sp. 13. ABDOMINALIS, Zeller (fig. 10).

Argyresthia abdominalis, Zeller, Isis, 1839, S. 205, 9. Linn. Ent. ii. 270.

Expansion of the wings 4 lines. Head white. Face white. Palpi white. Antennæ whitish, annulated with fuscous. Thorax white, with the sides luteous. Abdomen rufous. Legs whitish. Tarsi whitish. Anterior wings pearly white, with two luteous streaks proceeding from the base, one near the costa, the other towards the inner margin; this latter ends abruptly a little before the middle of the wing; that near the costa is continued rather further, but is not quite so distinct; beyond it on the costa is a luteous spot, and a little beyond is another fascia-formed one nearly reaching across the wing, and between this and the apex is yet another small one; on the inner margin, rather beyond the termination of the basal streak which is near the

inner margin, is a short, oblique, fascia-formed luteous spot, frequently nearly meeting the opposite costal spot; at the anal angle is another small luteous spot, which the opposite costal fascia-formed spot nearly touches; at the extreme apex are a few dark fuscous spots: cilia pale. Posterior wings very pale gray, with whitish cilia.

The colour of the abdomen at once distinguishes this species from all its congeners except the following, but from that it is distinguished by the pearly white ground colour of the anterior wings, the paler annulations of the antennæ, the paler feet and less-spotted tarsi; moreover, the posterior wings of this species are broader and less pointed than in *dilectella*.

This species, like the following, is a juniper-feeder; and these, with *arceuthina* and *præocella*, have caused some confusion, one being the juniperella of one cabinet and another of another cabinet. There are rarely two species out at the same time, so that a collector among the junipers in May would take one species, whereas a collector in June or July would take another. It is therefore very important to ascertain the precise period, if possible, of the appearance of each; and unfortunately with regard to the present species I can give no certain information, except that on the 5th of July, when *dilectella* was abundant at Sanderstead, I took only two specimens of this species; probably the right time for this would be the middle of June.

Sp. 14. *DILECTELLA*, Zeller.

Argyresthia dilectella, Zeller, Linn. Ent. ii. 272.

Argyromiges Housella, Dale in litt.

Expansion of the wings 4 lines. Head white. Forehead white. Palpi white. Antennæ white, annulated with dark fuscous. Thorax white, with the sides luteous. Abdomen rufous. Legs whitish. Tarsi whitish, spotted with fuscous. Anterior wings shining golden, with a violet tint in certain lights, especially towards the apex; two luteous streaks proceed from the base, one near the costa, the other towards the inner margin, and terminate rather before the middle of the wing: on the costa are two luteous spots, one about the middle of the wing, the other nearer the apex, and just before the apex is an irregular blotch of the same colour: about the middle of the inner margin is a fascia-formed luteous spot, curved outwardly, and approaching very close to the second costal spot, and at the anal angle is another luteous spot; at the extreme apex is a black dot: cilia pale, with a dark line a little from the edge of the wing, and another at the extreme edge of the cilia. Posterior wings pale gray, with paler cilia.

The rufous abdomen is a certain character by which to distinguish this species from all others of the genus except the preceding; but from that, independently of the different ground colour of the anterior wings, it is distinguished by the darker annulations of the antennæ, the more spotted tarsi, and the more pointed posterior wings.

I this year took a considerable number of this insect from the junipers at Sanderstead, July 5th, and towards the end of the month I met with a few in a garden at Sheffield, likewise on juniper. I believe it was first taken in this country near Bristol, by Mr. Dale.

Sp. 15. *ANDEREGGIELLA*, Fischer von Röslerstamm.

Æcophora Andereggiella, F-v-R., pl. 74, f. 2, S. 209. Dup. xi. 469, pl. 305, f. 9.

Argyresthia Andereggiella, Zeller, Linn. Ent. ii. 241.

Tinea I. V-ella, Haworth, Lep. Brit. 570, 32.

Argyrosetia I. V-ella, Steph. Illust. iv. 254. Wood's fig. 1313.

Expansion of the wings 5—5½ lines. Head white. Face white. Palpi white. Antennæ white, annulated with dark fuscous. Thorax white. Abdomen fuscous. Legs whitish. Tarsi whitish, spotted with fuscous. Anterior wings brilliant white, with the base of the costa yellowish; about the middle of the inner margin arises a broad tawny-brown fascia; this narrows a little after leaving the inner margin, and then again expands, becoming rather furcate; the point towards the base is continued no further, and therefore does not reach the costa, but towards the apex it is continued in an oblique direction till it reaches the costa (in some specimens this does not extend to the costa); where this touches the costa (or in those specimens where it does not, where it would if produced) there is a distinct tawny-brown spot, and a slender fascia arising from it goes to the anal angle, but a little before it reaches the angle there is a branch from it to the apex of the wing, in which at the extreme apex is a white spot: cilia tawny-brown, paler on the inner margin. Posterior wings purplish fuscous, with paler cilia.

This species has occurred at West Wickham, and likewise at Darenth and Lower Epping Forest, I believe. In Hainault Forest, last July and August, a considerable number were taken from the wild apple. On the Continent this has only occurred in the Valais, near Brieg, in July, among hazels, where it was taken by Anderegg.

I. V-ella is the older name, but of doubtful Latinity.

Sp. 16. *CURVELLA*, Linneus.

Tinea curvella, Linn. Faun. Suec. 1387.

Ederessa curvella, Stephens, Illust. iv. 250. Wood's fig. 1302.

Erminea curva, Haworth, Lep. Brit. 516, 14.

Tinea cornella, Fabr. Ent. Syst. iii. ii. S. 291, 17.

Æcophora cornella, Tr. ix. 2, S. 162, x. 3, S. 210 and 294. Dup. xi. 459, pl. 305, f. 3. F-v-R., pl. 15, f. 3, S. 23.

Argyresthia cornella, Zell., Linn. Ent. ii. 273.

Argyresthia sparsella, Zell., Isis, 1839, S. 205, 10.

Expansion of the wings 5—5½ lines. Head white. Face white. Palpi white. Antennæ white, annulated with dark fuscous. Thorax white. Abdomen fuscous. Legs pale. Tarsi pale, spotted with fuscous. Anterior wings white, the costal half scattered throughout with numerous dark fuscous short transverse streaks; on the inner margin, rather beyond the middle of the wing, arises a curved dark fuscous fascia, terminating on the costa, and at the anal angle arises another, terminating in the apex of the wing; there are generally some fuscous spots connecting these two fasciæ, and the apical one is connected with the costa by several fuscous streaks, the one near-

est the apex being much thicker than any of the others; between the base and the first fascia there is frequently a square fuscous patch on the inner margin, and a few short fuscous streaks: cilia fuscous. Posterior wings fuscous, with paler cilia.

This species is so very distinct that there is not much probability of its being confounded with any of its congeners; *retinella*, it is true, has numerous short transverse fuscous streaks, but is much smaller and has no fascia; the beautiful *Andereggiella* has some resemblance in markings, but has no scattered fuscous streaks.

I have met with this species rather plentifully among apple-trees, at the end of June; and I believe it is not uncommon in orchards in the South of England, but is rarer in the North.

This is the true *Tinea curvella* of Linneus, as is proved by two labelled specimens in the Linnean cabinet, and I must say that the Linnean description agrees very well with this insect.

Zeller's reason for calling this insect *sparsella* in the *Isis* was that Fabricius gives *sparsella*, *W. V.*, as a synonyme of his *cornella*, and of course the name of the Wiener Verzeichniss, being older than that of Fabricius, had priority; but it appears that the *sparsella* of Schæffermüller's cabinet is quite different, *F-v-R.* finding under that name two closely-allied species of *Gelechia*, namely, *electella* and *blandella*, *F-v-R.*

Sp. 17. *SORBIELLA*, (*Tischer*), *Treitschke*.

Æcophora sorbiella, Treitschke, ix. 2, S. 160, x. 3, S. 210 and 294. *F-v-R.* Beitrage, pl. 15, f. 2, S. 22.

Argyresthia sorbiella, Zeller, *Isis*, 1839, S. 205, 11. Linn. Ent. ii. 276.

"This considerably exceeds the preceding" (*curvella*) "in size, and has on the head, thorax and anterior wings no clear white, but white mixed with yellowish; the fascia does not reach the costa, but points towards the apex of the wing.

"Size generally above that of *Gædarta*; thorax and head only white, darkest and mixed with yellow on the sides of the thorax, the face, the palpi, and on the under-side of the basal joint of the brown and white annulated antennæ. The palpi outwardly generally inclining to pale brownish; feet shining whitish, inclining to brownish on the left side; the entire front of the fore feet is brown; the joints of the hinder tarsi are at their ends hardly perceptibly darker than at their origin. Abdomen brown-gray, whitish beneath; in the female, the anus yellowish, with long, projecting brown-yellow ovipositor.

"Anterior wings shining, white, inclining to yellow, only on the inner margin nearly pure white. From the base, the disk, beyond the fold of the wing is more or less richly reticulated with pale yellowish brown, or marked with undulating short transverse streaks. On the middle of the inner margin lies a yellowish brown spot, reaching to the fold, of very variable form, which generally expands at its upper part, and is either placed perpendicularly or turned rather towards the base. (In one specimen there is on it, above the fold, a straight, pointed continuation towards the base). The dark fascia is placed more obliquely exteriorly than in *cornella*; it is broad, and when half across the wing takes its direction towards the apex, yet nearer the hinder margin than the costa; it approaches the former with a spot-like dark broadening, which when rubbed remains as an actual spot below the middle of the

hinder margin; yellowish brown curved streaks run from this fascia towards the costa and hinder margin, and especially towards the apex. On the costa, among the dot-like streaks, is manifest one like a spot beyond the middle, after which follows a broader whitish gap. Cilia are pale yellowish gray, at the apex and end brown.

"Under-side shining gray-brownish, with paler base of the cilia at the apex of the wing.

"Posterior wings formed as in cornella, only somewhat narrower, shining gray, with pale cilia.

"The brown scales are not attached firmly; in wet weather and in flying many are lost, and the markings then only partly remain, whilst judging from the cilia, the specimens are still unwasted.

"This species is very widely distributed in the Riesen and Erz mountains, and is sometimes very abundant. Madame Lienig also discovered this species in Livonia. It lives, as it appears, only in mountains and high latitudes: its food (*Sorbus aucuparia*) is not rare in the woods near Glogau, but still I have not been able to find the moth on it. According to F-v-R.'s conjecture, which I cannot at present share, it feeds also on species of *Prunus*. The period of flight begins in the middle of June."

I beg to call the attention of the collectors of the North of England and Scotland to this species: let those who have opportunities search for it on its food on the mountain sides; and should they meet with it, let them bear in mind that not a single British cabinet possesses the insect, and consequently the demand for it must be very great.

Sp. 18. *PYGMÆELLA*, *Hubner*.

Tinea pygmæella, Hubner, 353.

Cecophora pygmæella, Tr. ix. 2, S. 159, x. 3, S. 209 and 294. F-v-R. pl. 15, f. 1, S. 22.

Argyresthia pygmæella, Zeller, Isis, 1839, S. 205—12. Linn. Ent. ii. 278.

Tinea semifasciella, Haworth, Lep. Brit. 570, 34.

Argyrosetia semifasciella, Stephens, Illust. iv. 252. Wood's fig. 1308.

Expansion of the wings 6 lines. Head whitish. Face whitish. Palpi whitish. Antennæ whitish, annulated with black. Thorax whitish, with a slight bronze-coloured gloss. Abdomen fuscous. Legs silky whitish. Tarsi silky whitish. Anterior wings whitish with a bronze-coloured gloss, with numerous short, dark, transverse streaks; from the middle of the base proceeds a darker bronze-coloured streak, which extends about a third along the wing, and meets a fascia, or rather semi-fascia, of a similar colour, which arises on the inner margin, and is carried rather obliquely towards the apex half across the wing; a little beyond this is another imperfect bronze fascia arising on the inner margin and reaching nearly to the costa; this is likewise placed obliquely and terminates almost in a point; at the anal angle is a bronze-coloured spot: cilia whitish, at the apex pale tawny. Posterior wings purplish gray; cilia slightly brownish.

This species is readily distinguished from *Gædarta* by the first fascia being connected with the base, by the second fascia not being forked, and by neither of these two fasciæ reaching more than half across the wing, whence the Haworthian name of

semifasciella: the form of the first fascia and the colour of the anterior wings distinguish it from *sorbiella*.

This insect frequents sallows in July, and is far from uncommon when its haunts are sought: a notice of its habits, by Mr. Sircom, is given in the 'Zoologist' (Zool. 2271).

Sp. 19. *GÆDARTELLA*, *Linneus*.

Tinea Gædartella, Linn. Syst. Nat. i. ii. 897, 436. Faun. Suec. 1401. Fabr. Ent. Syst. iii. ii. 320. Hubner, 133. Haworth, Lep. Brit. 571, 36.

Æcophora Gædartella, Tr. ix. 2, S. 162, and x. 3, S. 294. Dup. xi. 466, pl. 305, fig. 8.

Argyresthia Gædartella, Zeller, Isis, 1839, S. 205, 13. Linn. Ent. ii. 282.

Argyrosetia Gædartella, Steph. Illust. iv. 252. Wood's fig. 1307.

Expansion of the wings $5\frac{1}{2}$ lines. Head yellowish. Face whitish. Palpi whitish. Antennæ whitish, annulated with fuscous, the basal joint yellowish. Thorax yellowish. Abdomen fuscous. Legs pale fuscous. Tarsi pale fuscous, with darker spots. Anterior wings very variable, in the ground colour varying from whitish to golden; near the base is a golden fascia, placed obliquely; on the costa it is connected with the base; about the middle of the inner margin arises a forked golden fascia, one arm of which reaches the costa rather before the middle,—the other, placed more obliquely, in the opposite direction, reaches the costa a little before the apex; on the costa, between these, are generally a few golden spots; towards the anal angle arises another golden fascia, parallel to the exterior arm of the middle fascia, and occupying the whole of the apical portion of the wing, except two small spots of the same colour as the ground colour of the wings, one being at the apex, and the other at the anal angle: cilia pale golden. Posterior wings fuscous, with paler cilia.

Distinguished from *Brockeella* by the pale face and yellow head, and by the pale portions of the anterior wings being of a less brilliant white, and the darker portions more golden (not rich golden brown); from *pygmælla*, by the deeper colour of the head, the differently formed basal fascia, and the forked middle fascia; from *literella*, by the first fascia and also the middle one reaching to the costa.

This species is generally distributed, frequenting birches and alders in July.

Sp. 20. *LITERELLA*, *Haworth*.

Tinea literella, Haworth, Lep. Brit. 570, 33.

Argyrosetia literella, Steph. Illust. iv. 253. Wood's fig. 1310.

Expansion of the wings $5\frac{1}{2}$ lines. Head whitish yellow. Face whitish. Palpi whitish. Antennæ whitish, with fuscous annulations. Thorax whitish (?) Abdomen fuscous. Legs whitish. Tarsi whitish. Anterior wings whitish, with a slender golden fascia arising on the inner margin, not far from the base, sloping inwards, and not reaching to the costa; about the middle of the inner margin arises another fascia, which almost immediately becomes furcate, the inner arm of which is parallel to the first fascia, and the outer arm points to the costa a little below the apex,—neither arm is continued to the costa; towards the anal angle arises a third golden fascia, which,

after proceeding half-way across the wing, is deflected to the apex, to which it extends: cilia pale fuscous, somewhat golden at the apex. Posterior wings purplish gray, with grayish yellow cilia.

Differs from *Gædarella* in the fasciæ being narrower and not continued to the costa.

This description is made from Haworth's original specimen, in Mr. Stephens' collection.

Mr. Stephens has also a specimen, of his own capture, which he took at Darenth Wood, in June, 1846: this agrees in all the essential characters with Haworth's specimen, but on the costa is a small golden spot, in continuation, as it were, of the first part of the third fascia.

These two specimens are all I have yet seen. It may be an extraordinary variety of *Gædarella*; but to prove the point one way or other requires more specimens.

Sp. 20. BROCKEELLA, Hubner.

Tinea Brockeella, Hubner, 362 (262).

Æcophora Brockeella, Tr. ix. 2, S. 164, x. 3, S. 294. Dup. xi. 464, pl. 305, f. 7.

Argyresthia Brockeella, Zeller, Isis, 1839, S. 205, 14. Linn. Ent. ii. 286.

Argyrosetia Brockeella, Steph. Illust. iv. 252. Wood's fig. 1309.

Tinea I. W-ella, Haworth, Lep. Brit. 569, 31.

Tinea Rajella, Linn. Faun. Suec. 1407. Syst. Nat. i. ii. 898, 447. (Excluding ref. De Geer et descr. larvæ).

Var. *b. Tinea aurivittella*, Haworth, Lep. Brit. 570, 35.

Argyrosetia aurivittella, Steph. Illust. iv. 253. Wood's fig. 1311.

Expansion of the wings $5\frac{1}{2}$ lines. Head white. Face yellowish. Palpi yellowish. Antennæ white, annulated with dark fuscous, the basal joint yellowish. Thorax white. Abdomen fuscous. Legs pale. Tarsi pale, spotted with fuscous. Anterior wings brownish golden; on the inner margin are three brilliant white spots, the first at the base, the second rather before the middle, the third towards the anal angle; on the costa three brilliant white spots are always distinct, one rather beyond the second inner marginal spot, a second rather beyond the third inner marginal spot, and a third at the apex,—this last is always much smaller than the others; there is frequently a small spot on the costa opposite the second inner marginal spot, with which it is sometimes connected, thus forming a white fascia: cilia pale tawny fuscous. Posterior wings gray, with paler cilia.

In var. *b.* the three spots on the inner margin are confluent, and the little costal spot opposite the second inner marginal spot is frequently united with the next costal spot.

This is distinguished from *Gædarella* by the brilliant white colour of the head and markings on the anterior wings. It is less generally distributed, and frequents only the birch. Last year it was rather common at West Wickham Wood, among some young birches, at the end of July; but I am not aware that it has occurred there this year. It occurs in Scotland, but very rarely. Var. *b.* does not appear to be known on the Continent.

Many of your readers will be not a little surprised to find that I now give, without hesitation, the *Rajella* of Linneus as a synonyme, when no further back than last

March I wrote (Zool. 2094) "No part of the description will apply to *Brockeella*;" but this matter is very easily explained: it seemed to me then that the ground colour of *Brockeella* was white, whereas Linneus begins, "Anterior wings brownish or golden;" and it was not till after the publication of that number of the 'Zoologist,' that—by Mr. H. Doubleday sending me a specimen of *Brockeella*, and pointing out to me its resemblance with the Linnean description—I perceived the agreement. I now find that Zeller (who is still unaware of its being the Linnean *Rajella*) says that the ground colour of the anterior wings is white, but that the insect is more readily described if we take the gold colour for the ground colour. Further, I tried the experiment myself of describing the insect, taking white for the ground colour, and I soon got involved in such a labyrinth that I was obliged to desist.

The reference to De Geer and the description of the larva applying to a species of *Lithocolletis*, I have not thought it advisable to supersede Hubner's name, by which the insect is so generally known.

Sp. 21. *ARCEUTHINA*, Zeller.

Argyresthia arceuthina, Zeller, Isis, 1839, S. 205, 15. Linn. Ent. ii. 288.

Expansion of the wings 4 lines. Head white. Face whitish. Palpi whitish. Antennæ whitish, with brown annulations; basal joint white. Thorax white, the sides bronze-coloured. Abdomen fuscous. Legs whitish. Tarsi whitish, with the end of the joints brown. Anterior wings very shining, bronze-coloured, concolorous: cilia grayish. Posterior wings pale gray, finely pointed, with yellowish gray cilia.

The bronze concolorous anterior wings distinguish this from all its congeners, except the following, but from that it is readily separated by its white head and thorax and more pointed posterior wings.

This and the two following are juniper feeders, thus resembling *abdominalis* and *dilectella*: this species is abundant on junipers at Sanderstead and Riddlesdown, in May: I have met with it both in the middle and end of that month. It is very probably double-brooded, but I am not aware at what time the second brood appears.

Sp. 22. *CERTELLA*, Zeller.

Argyresthia certella, Zeller, Linn. Ent. ii. 289.

Expansion of the wings 4 lines. Head yellowish. Face yellowish. Palpi whitish. Antennæ whitish, with darker annulations; basal joint yellowish. Thorax bronze-coloured. Abdomen fuscous. Legs whitish. Tarsi whitish, with the end of the joints pale fuscous. Anterior wings very shining, bronze-coloured, concolorous: cilia grayish. Posterior wings pale gray, less finely pointed than in the preceding, with yellowish gray cilia.

Differs from the preceding in its yellow head, bronze thorax, and less pointed posterior wings.

I have a single specimen, which I took in May, 1847, along with *arceuthina*, among junipers.

Zeller states that he took his single male "in July, near Reinerz, on a lofty mountain in a pine wood; but whether juniper grows there, I no longer recollect."

Sp. 23. PRÆCOCELLA, Zeller.

Argyresthia præcocella, Zeller, Isis, 1839, S. 205, 16. Linn. Ent. ii. 290.

Expansion of the wings $3\frac{3}{4}$ — $4\frac{3}{4}$ lines. Head yellowish white. Face whitish. Palpi whitish. Antennæ whitish, annulated with dark fuscous; basal joint yellowish white. Thorax ochraceous. Abdomen reddish fuscous. Legs whitish. Tarsi whitish. Anterior wings ochraceous, concolorous, with a violet tint in certain lights: cilia ochraceous, palest on the inner margin. Posterior wings grayish, with ochreous-gray cilia.

Zeller states that the "hinder margin of the discoidal cell of the anterior wings shows a raised place, which might easily be considered a gray transverse short streak." In my finest specimen there is some appearance of this, but it looks as if it arose from setting the insect.

This species closely resembles the following, but, according to Zeller, "this has on the anterior wings a reddish, almost rose-coloured, gloss, which the other is entirely without; and the posterior wings of this are grayer and more acutely pointed."

I took two specimens of this (one very fine) at Sanderstead, May 18th, this year, beating them from juniper-bushes along with arceuthina. At the end of July and in August the insect is common among the junipers there, but is extremely wasted: probably the second brood appears about the middle of July. I saw none on the 5th of July.

Zeller says of it, "Scarce; hitherto only taken near Glogau. The first specimen, a male, I took at the beginning of March, on a window, where for some days a willow-branch had stood in water. I obtained a pair, together with arceuthina, from juniper-bushes, in May; and beat several, in company with Nematopogon Swammerdammellus, from the scanty fir-trees in the birch-wood at Hermsdorf."

Sp. 24. ILLUMINATELLA (F-v-R.), Zeller.

Argyresthia illuminatella, Zeller, Isis, 1839, S. 205, 17. Linn. Ent. ii. 291.

Æcophora illuminatella, Dup. xi. 462, pl. 305, f. 5.

Tinea Bergiella, Ratzeburg, Forst-insekten, ii. S. 246, pl. 15, f. 4.

"Certainly distinguished from the preceding by the more lively gloss and the want of the reddish flush on the pale ochreous anterior wings, and by the broader posterior wings.

"Size rather variable above and below præcocella: my largest male has the anterior wings nearly 3 lines long.

"Thorax somewhat shining, pale ochreous yellow. Head similar, without lustre. Antennæ distinctly annulated white and brown; in the female (? male), towards the apex, on the underside, very faintly indented: basal joint shining pale yellow, almost expanded into an eye-cap. Face shining. Palpi as long as the head, yellowish, thinner than in præcocella. Legs shining, pale dirty yellowish, only the anterior brown on the fore-side. Abdomen grayish yellow; on the belly more whitish. Ovipositor as in præcocella, a little projecting. Anterior wings rather broad, entirely concolorous, very pale ochreous yellow, with a rather lively gloss. Also here is an elevation formed on the transverse nervure of the discoidal cell, which casts a little shade. Cilia less

shining, palest at the anal angle. Under-side grayish yellow, darkest on the costa from the base.

"Posterior wings (towards the apex considerably broader than in *præcocella*) pointed, shining pale gray, with pale grayish yellow cilia.

"This occurs in Bohemia, near Nixdorf, from May to July, in pine and larch woods (F-v-R.); in Saxony, at Dresden (v. Ti.); in Silesia, at Probsthainer Spitzberg, on pine-bushes, at the end of May and beginning of June, not scarce. The natural history of the larva, which lives in the shoots of young pines, rarely on old trees, is given by Ratzeburg."

This insect resembles *præcocella* very closely; and I should have doubted whether our species had not been this, but as we take *præcocella* always from junipers, and never from pines, I think I am safe in considering it the *præcocella* of Zeller. It is rather singular that a species so common as *illuminatella* is on the Continent has not yet been detected in this country.

Sp. 25. *GLABRATELLA*, Zeller.

Argyresthia glabrata, Zeller, Linn. Ent. ii. 293.

"The much stouter, smooth, not pale yellow, but whitish gray, anterior wings,—and the more acute posterior wings, with longer apices,—distinguish this from *illuminatella*. The following larger *amiantella*, and the often equally large *Ocnrostoma piniariella*, have almost the same colour of the anterior wings; the first has also the yellowish hairs of the head; but in neither of them are any paler and darker rings on the antennæ visible, which our *glabrata* shows tolerably distinctly on the entire back of the antennæ. Besides, *amiantella* has a shining pale gray basal joint to the antennæ instead of a pale yellow one, and the posterior wings more pointed than in *glabrata*; and in *piniariella* the entire antennæ are concolorous gray, and the posterior wings likewise somewhat thinner pointed.

"The size of two females is as that of *arceuthina*; the single male is even smaller. Thorax concolorous, of the colour and lustre of the anterior wings. Head ochreous, darker than in *illuminatella*. Antennæ at the basal half rather distinctly annulated brown and white; towards the apex the rings are obliterated, and the antennæ appear shining gray; in the male underneath serrated; the shining basal joint is yellowish, in certain directions glittering dirty yellowish white, as well as the smooth shining face, and the palpi—which are as long as the face and rather slender. Legs, like the palpi, unspotted, only the anterior on the left side incline to brown. Abdomen gray, somewhat shining, paler on the belly: ovipositor rather projecting.

"Anterior wings of the form as in *illuminatella*, lively shining whitish gray or very light gray; on the costa hardly somewhat darker, with a scarcely discernible mixture of yellow. The transverse prominence is manifest in two specimens in the same place as in *illuminatella*; in the third specimen the disk is even. Cilia yellowish gray. Under-side light yellowish brown gray, much less shining than on the upper-side.

"Posterior wings lanceolate, more acute than in *illuminatella*, not so long pointed as in *amiantella*, shining pale gray, with yellowish gray, not shining, cilia.

"My male specimen, known by the less thin posterior wings and the antennæ

being serrated towards the apex, is smaller than the two females, according to the rule on this section.

"I took this scarce species near Reinerz, in pine woods, from the overhanging boughs, in the middle of July."

Sp. 26. *AMIANTELLA* (Kollar), Zeller.

Argyresthia amiantella, Zeller, Linn. Ent. ii. 294.

"The lesser glossiness and darker gray of the anterior wings, more pointed posterior wings, and concolorous gray antennæ, distinguish this species from *glabratella*; the greater glossiness and the yellowish head from *Oc. piniariella*.

"Size somewhat below *fagetella* (albistria), like a large *Oc. piniariella*. Thorax shining gray. Head ochreous-yellow. Antennæ very shining, concolorous, silvery gray, the basal joint paler. Face silvery white. Palpi drooping, hardly as long as the face, gray, faintly shining. Legs shining, pale gray, the anterior brown on the left side. Abdomen gray; belly whitish yellow; in the male with silvery white anus, in the female yellowish.

"Anterior wings very little broader than in *Oc. piniariella*, lively, shining, silvery gray, somewhat darker in the female, lighter towards the apex, with the projection on the transverse nervure as in the preceding species.

"Under-side, as well as the entire posterior wings, less shining and a little darker gray; post wings lanceolate, acutely pointed, with rather a long apex.

"The female has somewhat broader anterior wings, and a thinner apex to the posterior wings.

"Native country, Austria; the details are not known to me." ("Male and female in the cabinet of Metzner.")

Sp. 27. *GYSSELENIELLA* (Kuhlwein), Zeller (fig. 11).

Argyresthia Gysseleliella, Zeller, Isis, 1839, S. 205, 19. Linn. Ent. ii. 295.

Cecophora Gysseleliella, F-v-R., pl. 74, f. 3, S. 210. Dup. xi. 461, pl. 305, f. 4.

Expansion of the wings $4\frac{1}{2}$ —5 lines. Head gray. Face whitish gray. Palpi whitish. Antennæ whitish, annulated with fuscous. Thorax grayish fuscous. Abdomen tawny. Legs whitish. Tarsi whitish. Anterior wings gray, with the base and a fascia before the middle golden-brown; beyond this latter is a narrow pale fascia expanding along the inner margin of the wing, and there is a pale spot on the costa a little before the apex, the apex itself having a slightly golden tint: cilia whitish, irrorated with fuscous. Posterior wings griseous, with paler cilia.

Closely allied to the following, but readily distinguished by the broader anterior and posterior wings, by the delicate golden brown fascia before the middle (in *farinata* it is dark purple-brown), and by the golden fascia at the base, which is entirely wanting in the following species.

Not hitherto detected in this country. It should occur on fir-trees, in June and July. It is found in various parts of the Continent, and Zeller states that he took his specimens "in June and July, beating them out of the boughs of tall firs on the margins of woods."

The description given above is made from an Austrian specimen in the British Museum.

Sp. 28. *FARINATELLA*, Zeller (fig. 12).

Argyresthia farinatella, Zeller, Isis, 1839, S. 206, 20. Linn. Ent. ii. 296.

Ecophora farinatella, F-v-R., pl. 74, f. 4, S. 211. Dup. xi. 473, pl. 305, f. 11.

Telea subfasciella, Steph. Illust. iv. 247 ?

Expansion of the wings 4—5 lines. Head whitish, intermingled with gray hairs. Face whitish gray. Palpi whitish. Antennæ whitish, with dark brown annulations. Thorax grayish. Abdomen fuscous. Legs white. Tarsi white, with black annulations. Anterior wings grayish, with somewhat of a brownish purple tinge; rather before the middle of the wing is a well-defined white fascia, the inner margin of which is the darkest portion of the disk; towards the apex is an appearance of another fascia, or more frequently of two pale opposite spots, on the outer margins of which are several black scales; the inner-marginal half of the base of the wing is generally paler than the costal half: cilia pale gray, with two rows of black dots round the apex to the anal angle. Posterior wings grayish, with paler cilia.

Closely allied to the preceding, but at once distinguished by the absence of the golden fascia at the base, by the narrower anterior and posterior wings, by the darker colour of the ante-medial fascia, and the darker apical portion of the anterior wings, which thus renders the pale fascia far more prominent in this species.

Not an uncommon species among fir-trees, in June and July, and apparently widely distributed. I have taken it in plenty at West Wickham, Surrey, and in Torwood, Stirlingshire.

Zeller states that it occurs "on firs; generally in company with *Gysselella*."

The genus *OCNEROSTOMA*, Zeller, contains but one species, which differs but slightly from the concolorous *Argyresthiæ*, the essential characters of the genus being the extreme shortness of the palpi and a different neuration of the wings: this species is—

PINIARIELLA, Zeller.

Argyresthia piniariella, Zeller, Linn. Ent. ii. 299.

Argyresthia argentella, Zeller, Isis, 1839, S. 205, 18.

Ecophora galactitella, Eversm. F. V. U. 525, 4.

Porrectaria laricella, Thomson, Zool.

Expansion of the wings 4—4 $\frac{3}{4}$ lines. Head grayish white. Face grayish white. Palpi gray, almost concealed in the hairs of the head. Antennæ gray, concolorous. Thorax grayish white. Abdomen fuscous. Legs whitish. Tarsi whitish. Anterior wings silvery gray, concolorous: cilia pale gray, not glossy. Posterior wings pale griseous, with paler cilia.

The colour of the anterior wings varies considerably, being sometimes nearly white.

This insect differs from *Argyresthia amiantella* in having a gray head, and not a yellow one, and in the much shorter palpi. *Coleophora laricella*,* for which this

* *Coleophora* (*Astyages*) *laricella* of Hubner was first detected in this country this summer, by Mr. Bedell, who observed it flying in swarms round the boughs of

insect was at first taken by Mr. Thomson, is immediately distinguished by its smooth head.

Not uncommon among fir-trees, in March and April, and again in June and July. I have taken it on the Dartford Heath fence in April, and among some young firs in my garden in June and July. Messrs. Bedell and Douglas took it at West Wickham Wood, in March.

This is not the *argentella* of Linneus, for Linneus says "*Antennæ fusco-annulatæ*," whereas the species is distinguished from one or two of its congeners by its concoloured antennæ. There is a specimen of "*argentella*" in the Linnean cabinet, but I cannot identify the species: it may be an injured specimen of *illuminatella*. Fabricius, and, after him, Stephens, have considered the *argentella* of Linneus to be a species of *Crambus*, the description of the posterior wings, "*lanceolatæ, utrinque ciliatæ*," being, in their opinion, I presume, applicable to that genus.

The next group I purpose to have ready for the pages of the 'Zoologist' is the *Gracillariæ*; but in the meanwhile I am preparing a paper on the *Depressariæ* to be published in the 'Transactions of the Entomological Society.' I may perhaps as well mention here that a paper on the *Microsetiæ* with eye-caps (*augen-deckeln*) was presented by me to the Society, at the July meeting, and is now in course of publication. And I have now the cheering consolation that I am not alone in my labours among the *Micro-Lepidoptera*, Mr. Douglas being engaged on the *Anacampses*, and Mr. Weir on the *Alucitidæ*.

H. T. STAINTON.

Mountsfield, Lewisham,
October 28, 1848.

ART. II.—*Description of a New British Colymbetes.* By THOMAS JOHN BOLD, Esq.

Genus.—COLYMBETES, *Clairville*.

COLYMBETES (AGABUS) DISPAR, *mihi*.

Oratus, fortiter convexus, postice attenuatus, nigro-fusco-subæneus, subtiliter reticulato-strigoso-subpunctatus; ore, labro, frontis thoracisque marginibus, maculis duabus verticis, palpis, antennis, pedibusque rufo-ferrugineis; elytrorum marginibus basique plerumque late testaceis. Long. corp. 3—3½ lin.

Male.—With somewhat of the habit of *C. paludosus*; ovate, very convex, glossy, nigro-fusco-subæneous, finely reticulate, strigose, subpunctate, more especially on the head and thorax. Head scarcely convex, with two deep frontal impressions between the antennæ, and an obscure transverse vertical depression; the mouth, labrum, head in front, two large spots on the vertex, the palpi and the antennæ rufo-ferruginous;

larches, in West Wickham Wood, at the end of May. Mr. Weir also observed the insect in profusion at Mickleham. I have met with it myself at West Wickham Wood, and in my garden, but only sparingly.

the tips of the palpi and the apices of the joints of the antennæ, those towards the base excepted, narrowly dusky. Thorax short, transverse, very considerably narrowed anteriorly, posteriorly not much narrower than the base of the elytra; widely emarginate in front, the anterior angles reaching up to the eyes and closely embracing the head, acute; the sides oblique and rounded, distinctly margined; the base sinuated; above convex, with a small fovea on the disk, a row of punctures at the apex and another at the base, the former somewhat deep and irregular, the latter smaller, interrupted in the middle, crowded in a slight depression on each side towards the posterior angles, and continued on the lateral margins, where they become scattered; the sides broadly ferruginous. Scutellum black, glossy, very finely strigose. Elytra ovate, rather broad, the sides somewhat arcuate or rounded, gradually increasing in width to a little behind the middle, when they are rather abruptly and very considerably attenuated; the apex obtuse, slightly rounded; very convex, especially towards the base, and gradually sloping from the middle to the apex; more distinctly punctate towards the base; glossy, nigro-fusco-subæneous; the shoulders, the outer margins of the base and the lateral margins broadly testaceous; the apex concolorous; a short row of fine, not very numerous punctures on each side of the suture posteriorly, and four rows of more distinct impressions on each elytron, of which the innermost is the most regular, the others being much scattered, especially after the middle and towards the apex. Body beneath black; abdomen attenuated, with the elytra projecting over it, the posterior edges of the segments and the apex rufo-testaceous. Legs rufo-ferruginous; the femora, more frequently only the posterior, slightly clouded with fuscous; anterior and intermediate tarsi with the three first joints in each considerably dilated; posterior tarsi with the four basal joints beneath furnished with very long ciliæ, which are often abraded.

Female.—Obscure above, especially on the elytra, which resemble those of *C. Sturmii*; slightly broader behind, and shorter than the male; head, thorax and scutellum, shining; elytra very finely, closely and uniformly reticulate-strigose, much better marked than in the males, the puncturing more obsolete and the sides more fuscous; posterior and intermediate tarsi compressed, simple, not dilated; posterior tarsi without long ciliæ.

Closely allied to *C. uliginosus*, from which the form, sculpture, and the obscure tint of the female, will readily distinguish it. It appears to have a still greater affinity with *A. Reichei* of Aubé (*Iconog. et Hist. Nat. des Coleop. d'Europe*, tom. v. 138, pl. 16, fig. 6), but as he does not mention the dissimilarity of the sexes, and as his character represents the sculpture as “strigoso-subpunctatus,” which does not agree with our insect, it being distinctly reticulate-strigose, I lean to the conclusion that it is a species not before described.

Found in pools and ditches at Boldon Flats, county of Durham, in May and June.

I have possessed a female of this species for some years; and although unable to assign it to any recorded British species, I was yet unwilling to describe it, until I could do so from ampler materials, which this season has placed at my disposal; about twenty specimens having occurred, forming a series which exhibits little variation.

I have pleasure in acknowledging my obligations to my friends Messrs. Samuel Stevens and E. W. Janson, for their kindness in forwarding me specimens of rare

species for comparison: to the latter, as well as to Mr. James Hardy, I am likewise indebted for extracts from works not generally accessible to the provincial entomologist.

T. J. BOLD.

42, Bigg Market, Newcastle-on-Tyne,
October 25, 1848.

ART. III.—*Description of Brama pinna-squamata, a supposed unrecognized British Fish.*

By JONATHAN COUCH, F.L.S., &c.*

IN a paper on the fishes of Cornwall which I communicated to the Linnean Society in the year 1822 (vol. xiv.), there is the description of a species which I then referred to the genus *Chætodon* of Linneus,—a class of fishes that included an immense multitude of species which obtained their generic denomination from the structure and arrangement of their teeth, resembling rows of slender bristles; but a much more conspicuous character of the class is, that their fins are more or less encrusted with a continuation of the scales which are firmly spread over the body. The arrangement which Baron Cuvier has made, by elevating the Linnean *Chætodons* into a family, and denominating them—from this remarkable character of the fins—*Squamipennes* or scale-finned, must be admitted to be a great improvement; as he is thus enabled to distribute them into several subordinate genera, in which the genus *Brama* stands conspicuous, by having the whole of the dorsal and anal fins thus guarded, as well as the mystache; and, also, by the distinction of an elevated profile and remarkably short snout, the angle of the mouth descending much below the ordinary level.

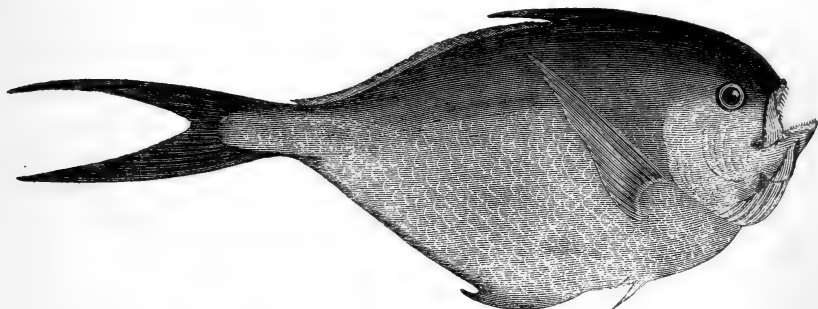
In this genus Cuvier has followed Bloch in placing Ray's bream (*Brama Raii*), so named from the illustrious British naturalist who first made it known,—and indeed the genus itself was especially constituted for the reception of this fish; for it is the opinion of Cuvier and Valenciennes, in which they are followed by Mr. Yarrell, that the genus, in fact, consists of no more than this one species, and that the *Chætodon* above referred to does not differ from the last-named fish.

The difficulty of forming a correct opinion on this subject arises in part from the great rarity of specimens, but more particularly from the fact that when my paper on the Cornish fishes was published, as I could not persuade myself that the species there described could be unknown to naturalists of more extended observation, and, consequently, I was not without the hope that at some future time I might be able to identify it by the aid of the sketch which I had taken of it, I retained it for my own use. When afterwards my friend Mr. Yarrell was engaged in publishing his 'History of British Fishes,' this figure was not in my possession; and the authority of Cuvier was sufficient to confirm the belief, that whatever differences might appear in the descriptions of the two fishes should be best explained by supposing some inaccu-

* Read before the Natural-History Society of Penzance.

racy or oversight in the examination, or perhaps some accidental difference between the specimens themselves.

The recent recovery of the original drawing of the fish described in the 'Linnean Transactions' (vol. xiv. p. 78), and a comparison of the account of this specimen in my original memorandum with a figure and description of an undoubted specimen of Ray's bream, which has also passed under my inspection, will now furnish sufficient ground for the formation of a correct opinion whether they are not sufficiently distinguished to be regarded as specifically different.



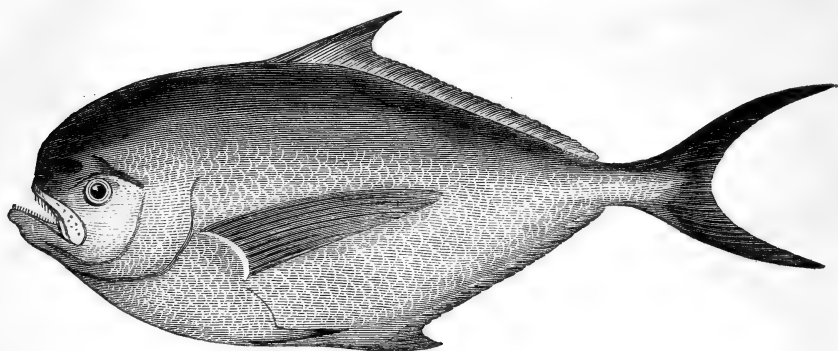
Brama pinna-squamata.

The specimen was about 17 inches long, and, exclusive of the dorsal fin, $5\frac{1}{2}$ inches deep; the snout blunt, sloping suddenly above the eyes; angle of the mouth depressed; teeth numerous, sharp, incurved, the four in front of the under jaw very long. The body deep, thin; two dorsal fins, the first having flexible rays, the second long and narrow, and there is no reason to suppose that the appearance of there being two fins is owing to a rent or injury between them; the tail very deeply lunate; the pectorals long; ventrals double, or having a wing, by which means it seemed to have four ventral fins; the anal fleshy and somewhat expanded at the origin, obscure in its progress towards the tail; no lateral line; a broad band from eye to eye; the colour blue, deeper on the back than on the belly; covered with large scales, as well the body as the fins, so that the dorsals and anals seem like an extension of the body; and it became impossible to count the rays of the dorsal fin.

It may contribute to the history of this species to add that it was taken by a servant girl, who saw it at the edge of the water in the act of dying, and seized it with her hands; as if it had wandered into a climate not congenial to its nature. It was sent to me a few hours after its capture, when it is probable the colours had grown more dull than during life.

Ray's Bream (*Brama Raii*, Yarrell's 'British Fishes,' vol. i. p. 117, 1st ed.) The specimen was 23 inches in length, $8\frac{1}{2}$ inches in depth before the dorsal fin; the figure much compressed. Head small, sloping in front; snout short; angle of the mouth depressed, under jaw longest; teeth slender, numerous, sharp, incurved, the inner row of the lower jaw longest; tongue fleshy: eye large, not far from the angle of the mouth; iris dark; pupil light: nostrils single. Measuring along the curve the dorsal fin begins $7\frac{1}{2}$ inches from the snout, having three shorter rays, like blunt spines,

each longer than the other; the fourth ray longest: the fin then becomes narrower, and continues slender to within an inch of the tail. Anal fin shaped like the dorsal; pectoral 6 inches long, rather narrow, pointing obliquely upward; ventrals triangular, having a wing three-fourths of its length; tail deeply forked: lateral line nearer the back, obscure. The head, body and fins,—except the pectorals and ventrals,—and even the mystache, covered with firmly fixed scales, which are deficient in a band across the forehead, the colour of which, and also of the back, is a very dark blue; copper-coloured brown over and before the eye; somewhat silvery on the sides and below; the dorsal and anal fins, and a stripe along the root of the former, are a sparkling silvery white, tinted with green before the dorsal fin, coppery and lake along the upper part of the sides; some dusky irregular stripes on the sides. Fin rays:—dorsal, 34; anal, 30; pectoral, 18; ventral, 25; caudal, 24.



Brama Raii.

Besides other distinguishing marks of difference between this fish and the former, as will be seen in their respective figures, the arrangement of the scales on the fins will particularly distinguish them; for while in the fish first described they were as uniformly distributed on the fins as over the body, so that the rays could not be distinguished,—in the latter they were so arranged in lines that each ray possessed its own, and thus each admitted of a slight degree of motion, the points of the fins also being free.

This fish was taken with a line, and was brought to me soon after its capture; but the silvery line along the root of the dorsal fin does not appear to vanish very readily, for it continued when the finer tints were no longer to be seen.

I learn, from a note in Cuvier's 'Animal Kingdom,' that Rafinesque, a Sicilian naturalist, highly commended by Mr. Swainson, has described two species of the genus *Brama*; but I have no opportunity of comparing my observations with what he has said concerning them. Cuvier concludes, from some mistakes that this gentleman had fallen into in describing other subjects of Natural History, that no dependence should be placed on his remarks on this also.

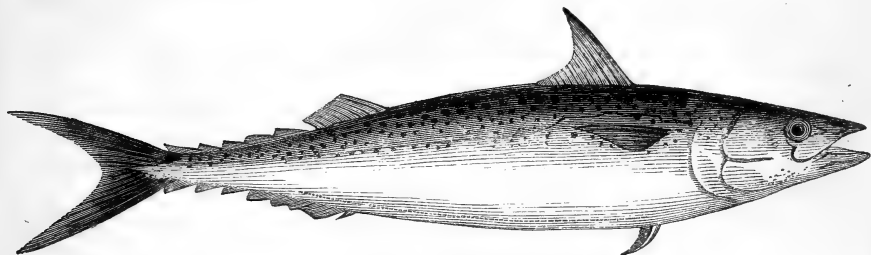
JONATHAN COUCH.

Polperro, Cornwall,
March, 1849.

ART. IV.—*Description of Scomber punctatus, a Species of Mackerel not hitherto recognized by Naturalists.* By JONATHAN COUCH, F.L.S., &c.

THE fish, of which I have the pleasure to lay a figure and description before the Society,* is not noticed in the great work on Ichthyology by Cuvier and Valenciennes, and, therefore, may be judged to be of very rare occurrence.

The family of mackerels has been so restricted by Cuvier that the genus *Scomber* is distinguished from those of *Thynnus*, *Oreynus*, *Auxis* and *Sarda* (of all which some specimens have been taken on the Cornish coast), by the absence of a corslet on the body. Restricted thus, there are two species of the genus *Scomber*, or true mackerels, that are known to visit our shores; the first, or common mackerel, forming the subject of extensive and prosperous fisheries; and the second, the Spanish mackerel (*Scomber Colias* of Mr. Yarrell's 'British Fishes'), of uncertain occurrence, being sometimes taken in quantities of a few scores or hundreds, and at other times not being met with for several years.



Scomber punctatus.

This last-named fish is distinguished from the common mackerel by its heavy and less elegantly formed head; but, remarkably, by numerous regularly defined spots on the belly, of an oblong form, and about the size of the section of a pea, and largest as they run parallel with the lateral line. As this was the only species of mackerel known to naturalists that is marked with numerous defined spots, it was with much probability supposed to be the species briefly described by Rondeletius, under the title of 'du coguail' in the French edition of his work, p. 192, and 'de colia' of the Latin copy, p. 235; and as the work of this ancient naturalist is not of common occurrence I will add his account of the fish: "*Κολιας* (*Colias*) c'est celui, selon mon avis, que l'on appelle à Marseille coguail, du tout semblable à un maquereau, hors mis seulement qu'il est plus grand é plus espés. Il est couvert d'écailles petites e tenures, é ha les traits du dos courts, é merqués de taches noires. Il ha une partie de la teste si claire qu'on i voit par le travers les nerfs descendans du cerveau aux jeux, qu'on appelle optique, comme par le travers d'un verre. Aux printems il jette du sang resplendissant comme le sang de la pourpre. C'est un poisson rare en nostre mer, frequent en Hespaigne, é plusieurs autres lieux." Besides the remarkable transparency which he describes, in the skull, of which I observed nothing, there appears to be an obscurity in another part of this description, as compared with either

* Read before the Natural-History Society of Penzance.

the Spanish mackerel (*Scomber Colias* of Cuvier) or the species I am now about to describe. The words of Rondeletius seem to imply that the back was marked with short lines, somewhat like the common mackerel (as I have myself observed in the *S. Colias*, though they are fewer in number and more distant), and also that the spots are on the same part of the body with these clouded lines (which certainly is not the case in the fish usually considered the *S. Colias*, as described by Cuvier or seen by myself). Unfortunately the figure engraved by Rondeletius does not remove this difficulty, since it is altogether free of such dots, either above or below; but his remark, that the fish was frequently found on the coast of Spain, must have satisfied Cuvier and Valenciennes that the fish they knew as the *Colias* was the same as that referred to by Rondeletius; and no other kind of mackerel with which it can be confounded is described in their eighth volume of 'Ichthyologie.' Under these circumstances there is reason for believing, that if Rondeletius ever met with this fish it could have been subjected to nothing more than a cursory inspection, and that he subsequently confounded it with the somewhat more common Spanish mackerel; and as it certainly has not been since recognized by any naturalist, it may safely be pronounced a species new to science.

This specimen was caught in a seine at Looe, July 6th, 1848; and I owe the possession of it to the kindness of Mr. Clement Jackson, of East Looe. The length was $15\frac{1}{2}$ inches, and the general proportions were those of the common mackerel. The more minute differences will be pointed out at the conclusion of this description. The first thing which attracted attention, in comparison with a common mackerel which lay beside it, were the scales, which covered the surface of the sides and belly, where none at all appears in the common species. These scales were conspicuous, appearing to be marked out by the crossing of minute lines running transversely, and their rounded edges appeared as if directed forward. There was no corslet, but above the pectoral fin there was some appearance of it, in a line of denser scales, which vanished under the pectoral fin. The first and second dorsal fins were three inches apart,—and the posterior edge of the former was more extended backward, and the groove that receives it longer, than in the other mackerel. Lateral line waved. First dorsal fin, 12 rays; second dorsal fin, 11 rays; pectoral fin, 20 rays. The tail rather more slender; and the attenuated portion of the body, close before the caudal fin, depressed and square. But the most remarkable distinction between this and the other British mackerels was in the colour, which was a uniform dark neutral tint over the head and back, without any coloured bands or variegations—it might be termed an olive bluish green, with green reflections at the sides; and from before the eyes, along the back and sides to the tail, the surface was thickly covered with spots, of the size of a small pea, generally round and well-defined, but a little larger and elongated transversely on the summit of the back. The spots end a little below the lateral line, and the belly is a pure white; the surface between the carinations of the tail a bronzed yellow colour. A membranous process unites the fifth ray of the first dorsal fin with the back; but this may not be a permanent character. I found this specimen a female, large with roe, and destitute of a swimming-bladder,—as is also our common mackerel, and I believe also the *S. Colias*; but the remark becomes important, as some species of this genus are possessed of this organ, and one sort is only to be definitely distinguished from the common mackerel by being supplied with it.

Having obtained a figure, of the size of Nature, and a description, I sent this fish with the drawing to my friend Mr. Yarrell, to be added to his collection, and also

to obtain his opinion with regard to its identity with any known species; and a portion of his reply is as follows:—"On comparing the preserved skin of our fish with your representation, I observe some points of distinction, which, though slight, may increase the amount of differences. Your fish appears to be less deep in proportion to its whole length than the old mackerel; the measurement being $2\frac{3}{4}$ deep by $15\frac{7}{16}$, or as 1 to $5\frac{1}{2}$; the old one $3\frac{1}{4}$ by $15\frac{3}{8}$, or not quite 1 in 5,—and this is remarkable, as your example was a female, and the roe large, as the time (July 6) would of itself indicate. The mouth in your fish appears to be smaller, the angle of the gape not placed so far back, and the superior maxillary bone is shorter and broader. The posterior edge of the preoperculum is more rounded,—in our mackerel the lower two-thirds of this edge is almost a straight and perpendicular line; the anterior portion of the lateral line appears to be more strongly marked." To this may be added, that the adult common mackerel is distinguished from its younger condition by a dusky mottled line, which runs along the side and separates the lateral line from the belly. Nothing of this sort was found in this fish, though of full growth and large with spawn. In reply to my suggestion of a name, Mr. Yarrell says, "*Scomber punctatus* would be an excellent name for it, as referring at once to its most obvious external markings."

JONATHAN COUCH.

Polperro, Cornwall,
March, 1849.

ART. V.—*Descriptions of New British Aphides.*

By F. WALKER, Esq., F.L.S., G.S., &c.

Aphides on the Geranium (Pelargonium).

APHIS EXTRANEÆ.

The wingless viviparous female.—The body is green and oval: the antennæ are very pale yellow and not half the length of the body; their tips are brown: the rostrum and the tubes are pale yellow with brown tips, and the latter are less than one-twelfth of the length of the body: the legs are pale yellow, rather short and very slender: the tarsi and the tips of the tibiæ are brown.

Aphides on the Sea-rocket (Cakile maritima).

APHIS CONTERMINA.

The wingless viviparous female.—The body is small, oval, rather flat, pale brown, velvet-like, covered (especially beneath) with a white bloom: there are dark bands on the back, interrupted in the middle and ceasing towards the hind part of the body: the antennæ are black, brown at the base, and about half the length of the body; the fourth joint is shorter than the third; the fifth joint is much shorter than the fourth; the sixth joint is much shorter than the fifth; the seventh joint is nearly as long as the fourth: the rostrum is pale yellow; its tip and the eyes are black: the tubes are

dull yellow with black tips, and about one-eighth of the length of the body: the legs are dull yellow and rather short; the coxæ are brown; the knees, the tarsi and the tips of the tibiæ are black.

Var.?—The body is broad, dull, dark brown: the antennæ are black and more than half the length of the body: the rostrum is brown with a black tip: the legs are brown and rather long; the knees, the tarsi and the tips of the tibiæ are black.

Aphides on the Sea-Kale (Crambe maritima).

APHIS REDUNDANS.

The wingless viviparous female.—The body is small, oval, slightly convex, velvet-like, greenish yellow: the antennæ are pale yellow, black towards their tips, and more than half the length of the body: the eyes are red: the rostrum is pale yellow with a black tip: the tip of the abdomen and the tubes are pale yellow; the latter have black tips and are about one-fifth of the length of the body: the legs are pale yellow; the thighs are tinged with green; the feet are black.

The winged viviparous female.—The body is black: the abdomen is tinged with green: the antennæ are nearly as long as the body: the rostrum is dark yellow with a black tip: the thighs at the base, and the shanks excepting their tips, are yellow: the wings are very much longer than the body; the wing-ribs are yellow; the brands and the veins are pale brown.

Found on the sea-kale in the autumn, near Newcastle, by Mr. Hardy.

Aphides on the Wild Heart's-ease (Viola tricolor).

APHIS CERTA.

The wingless viviparous female.—The body is small, oval, convex, dull black: the thorax is reddish: the head is red: the tip of the abdomen is dark red: the antennæ are very slender, reddish towards the base, and nearly as long as the body: the rostrum is dull dark green with a black tip: the tubes are dull red with black tips, and about one-fifth of the length of the body: the legs are black; the thighs at the base, and the four anterior tibiæ, excepting their tips, are yellow.

APHIS INSESSA.

The wingless viviparous female.—The body is small, rather flat, oval, yellow: the antennæ are black towards the tips and about half the length of the body: the eyes and the tip of the rostrum are black: the tubes have black tips and are hardly one-tenth of the length of the body; the tarsi and the tips of the tibiæ are black.

Found, with the preceding species, in the autumn, near Fleetwood.

Aphides on the Sea Catchfly (Silene maritima).

APHIS CADIVA.

The wingless viviparous female.—The body is small, oval, rather flat and broad, dull, pale green, slightly tinged with yellow: the eyes are red: the rostrum is pale

yellow with a black tip: the antennæ are pale green, black towards their tips, and about half the length of the body: the legs are pale yellow; the thighs are pale green; the tips of the shanks are brown; the feet are black. The young ones are narrow and linear, and sometimes pale red.

Found near Fleetwood in the autumn.

Aphides on the Sea Chickweed (Arenaria peploides).

APHIS AUCTA.

The wingless viviparous female.—The body is oval, rather flat, velvet-like, whitish green, tinged with yellow: the antennæ are pale yellow, black at the tips, and shorter than the body: the eyes are red: the rostrum is pale yellow with a black tip: the tubes also are pale yellow with black tips, and about one-eighth of the length of the body: the tube at the tip of the abdomen and the legs are pale yellow; the thighs are pale green; the knees and the tips of the tibiæ are brown; the tarsi are black.

The winged viviparous female.—The body is black: the abdomen is dark green tinged with red, and almost black above: the antennæ are black and a little longer than the body: the rostrum and the tubes are dull yellow with black tips, and the latter are a little more than one-sixth of the length of the body: the legs are black; the thighs at the base, and the shanks excepting their tips, are yellow: the wings are colourless and nearly twice the length of the body; the squamulæ are pale yellow; the stigmata and the veins are brown.

Found in the autumn near Newcastle by Mr. Hardy.

Aphides on the Mallow (Malva sylvestris).

APHIS ADDITA.

The wingless viviparous female.—When very young the body is dark green, slightly powdered with white: the limbs are still darker: the tubes are one-twelfth of the length of the body. When full grown it is small, nearly elliptical, slightly convex, greenish black, except towards the tip of the abdomen, which is dull green: the antennæ are dull yellow, brown at the base and at the tips, and much shorter than the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are black and about one-sixth of the length of the body: the legs are dull yellow; the tarsi and the tips of the shanks are black.

The winged viviparous female.—While a pupa it is greenish black: the head and the fore chest are dull green: there are four rows of white spots on the abdomen. The winged Aphis is small, black and shining: the abdomen is much broader than the chest and is sometimes metallic brown: the antennæ are more or less shorter than the body: the rostrum is pale yellow with a brown or black tip: the tubes are about one-sixth or one-eighth of the length of the body: the legs are yellow or pale yellow; the four hinder thighs excepting the base, the knees, the tarsi and the tips of the tibiæ are black: the wings are colourless and very much longer than the body: the squamulæ and the costal veins are pale yellow; the stigmata are buff or pale brown; the other veins are brown; the second fork of the third branch-vein is sometimes wanting.

Aphides on the Lime (Tilia rubra).

APHIS ADDUCTA.

The wingless oviparous female.—The body is small, oval, convex, black: the antennæ are white with black tips, and shorter than the body: the tubes are about one-twelfth of the length of the body: the four anterior legs are white, excepting the knees, the tarsi and the tips of the tibiæ, which, like the hind legs, are black. It lays its eggs on the lime-twigs at the end of October.

The winged male ?—The body is black: the borders of the fore chest, the fore breast and the abdomen are yellowish brown; the latter has a black stripe: the thighs are yellow at the base; the shanks are very dark yellow with black tips.

Found with the preceding.

Aphides on the Sweet Pea (Lathyrus odoratus).

APHIS DISSITA.

The winged viviparous female.—Of this very distinct species I have only seen one specimen, which has the appearance of a male; but it was found in the beginning of May. The body is black and shining: the antennæ are slender and nearly as long as the body: the rostrum is black and does not reach the middle coxæ: the tubes are as long as one-twelfth of the body: the legs are dark brown or nearly black: the thighs are dull yellow towards the base: the wings are gray and twice the length of the body; the squamulæ are dull yellow; the stigmata and the veins are dark gray.

Aphides on the Bush Vetch (Vicia Sepium).

APHIS TRIBULIS.

The wingless viviparous female.—The body is black, oval, convex, and of moderate size: the antennæ are black and a little longer than the body; the third joint is pale yellow at the base: the abdomen has a rim on each side and two rows of tubercles on the back: the tubes are as long as one-fifth of the body: the tip of the abdominal tube is yellow: the legs are long. The young ones are linear, with pale and half-pellucid limbs.

Found in the autumn.

Aphides on the Common Vetch (Vicia Sativa).

APHIS RUMICIS ?

The winged viviparous female.—The body is black and small: the borders of the prothorax are green: the abdomen is dark green: the antennæ are black and shorter than the body: the rostrum is dull yellow with a black tip: the tubes are black and about one-eighth of the length of the body: the legs are yellow; the hind thighs excepting the base, the tarsi, and the tips of the other thighs and of the tibiæ, are black: the wings are colourless; the squamulæ and the costal veins are pale yellow; the

stigmata and the other veins are pale brown. While a pupa it is black, and slightly covered with a white bloom: the limbs and the rudimentary wings are very dark green.

Found near Newcastle, in the middle of September, by Mr. Hardy.

Aphides on the Rest-harrow (Ononis spinosa).

APHIS TRANSLATA.

The wingless viviparous female.—The body is oval, convex, shining, rather broad, somewhat dark green, mottled with black: the head is dull yellow: the abdomen is reddish towards its tip: the antennæ are black, pale yellow towards the base, and nearly as long as the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are yellow with black tips, and rather more than one-eighth of the length of the body: the legs are yellow; the knees, the tarsi and the tips of the tibiæ are black.

APHIS INDUCTA.

The winged viviparous female.—The body is black and very small: the borders of the prothorax are dark yellow: the abdomen is very dark brown: the antennæ are black and a little longer than the body: the rostrum is black, yellow towards the base: the tubes are also black and about one-eighth of the length of the body: the legs are yellow; the thighs, the tips of the tibiæ, and the tarsi from the middle to the tips, are black: the wings are colourless; the squamulæ are yellow; the stigmata and the veins are brown.

APHIS INCUMBENS.

The wingless viviparous female.—The body is small, black, narrow, spindle-shaped, shining, and very finely shagreened: the head and the antennæ are yellow, and the latter are about half the length of the body: the tubes are dull yellow with black tips, and hardly more than one-twentieth of the length of the body: the legs are pale yellow and rather short; the knees, the tarsi and the tips of the tibiæ are black.

Aphides on the Sloe (Prunus spinosa).

APHIS IMPACTA.

The wingless viviparous female.—The body is oval, short, very plump, dark red, covered with a white bloom: the eyes, the rostrum and the antennæ are black, and the latter are nearly half the length of the body: the tubes are black and as long as one-tenth of the body: the legs are also black.

Found in the beginning of June.

The winged viviparous female.—Like the wingless insect in colour, and especially so while a pupa.

APHIS CONVIVA.

The wingless viviparous female.—The body is oval, short, convex, yellow: the antennæ are dull yellow, black towards the tips, and much shorter than the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow with black tips and about one-tenth of the length of the body: the legs are also pale yellow; the tips of the thighs and of the tibiæ are darker; the knees and the tarsi are black.

Found near Lancaster, at the end of October.

APHIS NOCIVA.

The winged male.—The body is small and black: the feelers are shorter than the body and rather thick till near their tips: the rostrum is yellow with a black tip: the abdomen is rather dark green: the tubes are black and as long as one-eighth of the body: the legs are yellow; the hind thighs except the base, the tips of the other thighs and of the tibiæ, and the tarsi, are black: the wings are colourless; the squamulæ are yellow; the stigmata and the veins are brown.

Found with the preceding.

APHIS CONSONA.

The winged viviparous female.—The body is black, shining, stout, plump, of moderate size, slightly covered beneath with a gray bloom: the abdomen is dark dull red beneath, and sometimes its back is very dark green: the antennæ are black and rather more than half the length of the body: the rostrum is black, green towards the base: the tubes are black and about one-fifth of the length of the body: the legs are black; the thighs at the base, and the shanks excepting their tips, are dull green: the wings are colourless; the squamulæ are pale yellow; the stigmata are pale brown; the veins are brown. While a pupa it is short, broad, and nearly elliptical, with a brassy tinge on the back, slightly covered beneath with a white bloom, which also extends above in a transverse band: there is a pale red spot at the base of each tube: the rudimentary wings are pale green; their tips and the legs are black.

Found at the end of April.

APHIS BELLULA.

The winged viviparous female.—The body is black and very small: the borders of the fore chest are dark green: the abdomen is very dark green and marked above with black: the antennæ are a little shorter than the body: the rostrum is dull green with a black tip: the tubes are dull green and hardly one-eighth of the length of the body: the legs are pale green; the tarsi, the tips of the thighs and of the tibiæ, and the four hinder thighs from the middle to the tips, are black: the wings are colourless and very much longer than the body; the squamulæ and the costal veins are pale yellow; the stigmata and the veins are brown.

Var. ♀—Much larger, and the abdomen is green on the back as well as below: the stigmata are pale brown.

APHIS TRANSMUTATA.

The winged viviparous female.—The body is black, and as large as that of the variety of the preceding species: the antennæ are black and longer than the body: the rostrum is yellow with a black tip: the tubes are black and as long as one-sixth of the body: the thighs at the base, and the tibiæ excepting their tips, are yellow: the wings are colourless and much longer than the body; the squamulæ and the costal veins are pale yellow; the stigmata are dull yellow; the other veins are brown.

Found with the preceding species, in the middle of September.

Aphides on the Plum (Prunus domestica).

APHIS CONVECTA.

The wingless viviparous female.—The body is oval, slightly convex, grass-green: the antennæ are dull yellow and hardly more than half the length of the body: the eyes are dark brown: the rostrum is dull yellow with a brown tip: the tubes are about one-twelfth of the length of the body: the legs are pale yellow; the feet and the tips of the shanks are brown.

Found in May.

APHIS PERSORBENS.

The wingless viviparous female.—The body is oval, convex, shining, grass-green or dull pale green, sometimes prettily mottled with red or with crimson, and like a ripe plum in colour: the antennæ are pale green, darker towards the tips, and less than half the length of the body: the eyes are dark brown: the rostrum is pale green with a brown tip: the tubes are not more than one-twentieth of the length of the body: the legs are pale green; the tarsi and the tips of the tibiæ are brown: the limbs are white for a while after the skin has been shed.

Found before the middle of April.

APHIS INTERNATA.

The winged viviparous female.—While a pupa it is green: the limbs are paler: the antennæ are longer than the body; the tips of the joints are brown: the tips of the mouth and of the tubes are also brown, and the latter are one-fourth of the length of the body: the legs are long and slender; the knees, the tarsi and the tips of the tibiæ are brown: the rudimentary wings are pale.

Found at the end of April.

APHIS TRANSPOSITA.

The winged viviparous female.—The body is grass-green and rather small: the disks of the head, of the chest and of the breast are brown: the abdomen has a row of black spots on each side: the antennæ and the eyes are black, and the former are nearly as long as the body: the rostrum is pale green with a dark tip, and does not reach the middle coxæ: the tubes are green and nearly one-fifth of the length of the

body: the legs are long and pale green; the tarsi, and the tips of the thighs and of the tibiæ, are brown: the wings are colourless; the squamulæ are very pale green; the stigmata are very pale brown; the veins are brown.

Found at the end of May.

APHIS DETRACTA.

The winged viviparous female.—The body is black, small and shining: the antennæ are shorter than the body: the rostrum is dull green with a black tip: the abdomen is dark green with a row of black spots on each side; the disk is black, and sometimes the spots are confluent and occupy the whole back: the tubes are black and as long as one-eighth of the body: the legs are dull yellow; the thighs excepting the base, the tarsi and the tips of the tibiæ are black: the wings are colourless and very much longer than the body; the squamulæ are pale green or pale yellow; the stigmata are pale brown; the veins are brown: the legs are sometimes quite black, with the exception of the fore thighs, which are dull pale yellow at the base. While a pupa it is nearly elliptical, grass-green, and sometimes varied with red: the antennæ are dull yellow and hardly more than half the length of the body: the eyes are dark brown: the rostrum is dull yellow with a brown tip: the tubes are about one-twelfth of the length of the body: the legs are pale yellow; the tarsi and the tips of the tibiæ are brown.

Found in May.

APHIS EGRESSA.

The winged viviparous female.—The body is black and of moderate size: the borders and the under-side of the prothorax are reddish, as is also the abdomen, which has a black disk and a row of black spots on each side: the antennæ are black and much longer than the body: the rostrum is yellow with a black tip: the tubes are dull yellow, slightly spindle-shaped, and nearly one-fourth of the length of the body: the thighs are pale yellow, black from the middle to the tips; the tibiæ are dark yellow, their tips and the tarsi are black: the wings are colourless; the squamulæ and the costal veins are pale yellow; the stigmata are pale brown; the other veins are brown.

Found near Lancaster, in the middle of October.

Aphides on the Apple (Pyrus malus).

APHIS DEVECTA.

The wingless viviparous female.—The body is dull green, short, very plump, covered with a white bloom: the antennæ are brown, dull green at the base, and shorter than the body: the eyes are black: the mouth is dull green with a brown tip: the nectaries are black and as long as one-tenth of the body: the legs are pale yellow and rather long; the feet, and the tips of the shanks and of the four hinder thighs, are black.

First var.—The body is very dark green: the thighs are black, pale yellow at the base.

Found in the beginning of June.

Aphides on the Medlar (Mespilus germanica).

APHIS INSERTA.

The wingless viviparous female.—When very young the body is oval, convex, pale green: the limbs are darker, except when the skin has been lately shed, and then they are white: the antennæ are less than one-half the length of the body: the eyes are red: the tubes are about one-twelfth of the length of the body. When full grown the body is pale yellow mottled with green, or having three irregular green stripes on the back: the limbs are yellow: the antennæ excepting the base, the tips of the rostrum and of the tubes, the knees, the tarsi, and the tips of the tibiæ, are brown.

Found in April.

APHIS NUTRICATA.

The wingless viviparous female.—The body is rather flat and broad, especially towards the hind part, and of a beautiful soft fresh green colour mingled with yellow: the antennæ are not more than one-third of the length of the body: the tubes are pale green with brown tips, and about one-eighth of the length of the body: the legs are pale green; the tarsi and the tips of the tibiæ are brown.

Found in the beginning of July.

APHIS MACTATA.

The winged viviparous female.—The body is small and black: the abdomen is green, with two or three transverse bands at the tip and a row of black spots on each side: the borders of the prothorax are green: the antennæ and the rostrum are black; the former are hardly more than half the length of the body; the base of the latter is green: the tubes are black, not more than one-twentieth of the length of the body: the legs are pale yellow and moderately long; the tarsi, and the tips of the thighs and of the tibiæ, are black: the wings are colourless and very much longer than the body; the squamulæ are very pale yellow; the stigmata are pale dull green; the veins are brown.

Found at the end of May.

APHIS INSITA.

The winged viviparous female.—While a pupa it is linear and pale green: the antennæ are green with light brown tips: the legs are very pale green; the tarsi are brown. The winged insect is small, light grass-green, with three black stripes on the thorax: the antennæ are black and a little longer than the body: the eyes are dark red: the rostrum is pale green with a black tip: the tubes are also pale green and about one-seventh of the length of the body: the legs are pale green and moderately long; the tarsi, and the tips of the thighs and of the shanks, are black: the wings are colourless and much longer than the body; the squamulæ are very pale green; the stigmata are light green; the veins are brown.

Found at the end of May.

APHIS ASSIDUA.

The winged viviparous female.—The body is green: the disk of the thorax is pale brown: the antennæ are black, slender, and shorter than the body: the eyes are dark brown: the rostrum is pale green: the tubes are dark green and about one-fourth of the length of the body: the legs are dull green and moderately long; the thighs are pale green at the base; the tarsi and the tips of the tibiæ are brown: the wings are colourless and nearly twice the length of the body; the squamulæ and the costal veins are dull pale green; the stigmata are pale brown; the veins are brown.

First var.—The body is dark dull red.

Found in the beginning of May.

F. WALKER.

March, 1849.

ART. VI.—*Description of a New British Species of Argyresthia.*

By H. T. STANTON, Esq.

Sp.—AURULENTILLA, Zeller in litt.

Expansion of the wings $3\frac{3}{4}$ lines.

Closely allied to præcocella, with which I had confounded it; but differs in being smaller in the head and middle of the thorax being *white*, and in the posterior wings being narrower and their cilia more yellowish.

Not scarce among the junipers at Sanderstead, at the end of July and beginning of August.

The following corrections are necessary at page xx., in the account of præcocella:—

For “expansion of the wings $3\frac{3}{4}$ — $4\frac{3}{4}$ lines,” read “expansion of the wings $4\frac{1}{4}$ — $4\frac{3}{4}$ lines.”

In the notice of capture strike out from “At the end of July, &c.,” to the end of the paragraph.

Of præcocella I have only the two specimens mentioned: aurulentilla I first took in 1845, and have given to several entomologists, at first as juniperella, and last autumn as præcocella.

H. T. STANTON.

Mountsfield, Lewisham,

March 12, 1849.

ART. VII.—*Descriptions of two New Species of British Nomadæ.* By FREDERICK SMITH, Esq., Curator to the Entomological Society.

NOMADA ARMATA, *Schäffer*.

Female.—(Length $5\frac{1}{2}$ lines). Black: head, the mandibles, margin of the clypeus, a dot at the vertex of the eye, and the antennæ, ferruginous,—the latter have the scape black above and four or five joints at the apex fuscous, the apical joint bright ferruginous; a little silvery pubescence on the face. Thorax, the collar narrowly edged with ferruginous; the tubercles, tegulæ, two spots on the scutellum and a line beneath them, ferruginous; posterior coxæ and the metathorax laterally clothed with silvery pubescence; a spot of the same beneath the wings; legs red; all the coxæ and trochanters at their extreme apex, all the femora beneath at their extreme base, the posterior likewise behind, black; the posterior tibiæ at their apex within and also the basal joint of the tarsi stained with fuscous. Abdomen ferruginous; the base black; the second segment has an ovate yellow macula; the second and third have laterally a narrow transverse line.

Male.—(Length $5\frac{1}{2}$ lines). Black: head, antennæ ferruginous, the basal joint black; the mandibles yellow, their tips ferruginous; the labrum black, with a sharp tooth in the middle of its base. Thorax, the tegulæ, tubercles and legs ferruginous; the coxæ, trochanters, and femora (except their apex above), black; all the tibiæ have a black stripe within; the apical margins of the wings fuscous. Abdomen ferruginous; the base black; the second segment has a lateral, large, ovate, yellow macula; the third and fourth have a lateral oblong yellow spot at their basal margins; the fifth and sixth have a transverse yellow band, sinuate above; beneath, the second to the fifth have a short transverse narrow line in the male, and the third to the sixth a central black dot.

I have no doubt of this being the *N. armata* of Schäffer: in general aspect it resembles *N. ochrostoma*, and, according to Schäffer, "it has a larger head; the pubescence is paler; the scape only of the antennæ is black; the labrum black, with a sharp tooth at its base in the centre." In all these particulars our male agrees with *armata*. This fine addition to the British fauna was first captured by Dr. Leach, at Bantham, Devon, some years ago. A single specimen of the female is in the British collection at the British Museum. The male was captured by Mr. Samuel Stevens, and presented to me by that gentleman. There is a pair of this species in the national collection, from North America.

NOMADA RUBRA.

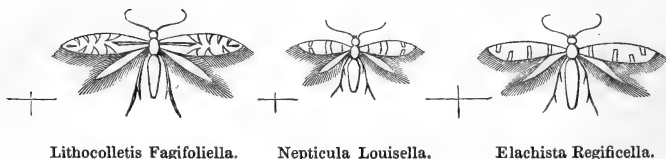
Female.—(Length $4\frac{1}{2}$ lines). Ferruginous: mandibles yellow; a spot at the base of the antennæ, the tips of their scape above, and the cheeks, black, with a ferruginous line behind the eyes. Thorax, the tubercles yellow; the metathorax and the disk black, with a ferruginous line passing over the tegulæ to the scutellum, both of which are also ferruginous; the metathorax laterally and the posterior coxæ, which are black, clothed above with silvery pubescence. Abdomen entirely ferruginous, immaculate; the apical segment narrowly edged with silvery pile.

This species is unique in the British collection at the British Museum, and was taken by Dr. Leach at Kingsbridge, in Devonshire.

FREDERICK SMITH.

ART. VIII.—*Descriptions of three New British Tineidæ.*

By JOHN SIRCOM, Jun., Esq.



Lithocolletis Fagifoliella.

Nepticula Louisella.

Elachista Regificella.

LITHOCOLLETIS FAGIFOLIELLA.

Exp. 3 lines. Fore wings pale golden, with the marginal spots, basal line and apical mark resembling those of Pomifoliella; the first inner spot, however, is not pointed: hind wings leaden, with paler cilia: head concolorous with the wings; forehead white: antennæ white, ringed with brown; tips and base apparently ringless: hind legs white, having a black ring extending about $\frac{2}{3}$ from the last spur to the end of the leg—a beautifully distinguishing character.

Taken August 23rd, at Brislington.

NEPTICULA LOUISELLA.

Exp. $2\frac{1}{2}$ lines. Fore wings black, with a sulphur-yellow band at the base, a broad somewhat angular fascia commencing at about $\frac{1}{3}$ of the wing from the base; at a similar distance between this and the extremity of the wing are two quadrangular, opposite, marginal spots; apical cilia concolorous with the yellow fascia and spots: hind wings and cilia fuscous: head light red.

Taken July 28th, at Portshead, Somersetshire.

ELACHISTA REGIFICELLA.

Exp. 4 lines. Fore wings black, shining, with a silvery band near the base; another in the centre of the wing extending $\frac{2}{3}$ from the inner margin towards the costa, but slightly inclining from the base; a third semi-fascia nearly meets a similar one from the costa,—this costal line lies nearer the apex than that from the inner margin: hind wings and antennæ similar to those of Gleichella, but the head of some specimens has a deep purple hue.

Taken July 28th—August 25th, at Brislington.

JOHN SIRCOM, JUN.

ART. IX.—*Descriptions of New British Aphides*. By FRANCIS WALKER, Esq., F.L.S.

Aphides on the Petty Spurge (Euphorbia peplus).

APHIS EUPHORBIAE.

The wingless viviparous female.—The body is saffron colour, somewhat small, rather flat, nearly linear, or slightly broader towards the abdomen; the borders and the sutures of the segments are pale yellow: the antennæ are pale yellow and very nearly as long as the body; the tips of the joints are black: the eyes are bright red: the rostrum is pale yellow, with a black tip: the tubes are pale yellow, with black tips, and as long as one-sixth of the body: the legs are long and pale yellow; the thighs are pale green; the knees and the tips of the tibiæ are dark yellow; the tarsi are black.

In the beginning of October.

Aphides on the Wild Celery (Apium graveolens).

APHIS INCULTA.

The wingless oviparous female.—The body is very small, short, elliptical, green, covered with white powder: the head, the eyes and the antennæ are black, and the latter are nearly one half of the length of the body: the tubes are black and not more than one-twentieth of the length of the body: the tip of the abdomen is black and slightly tapering: the legs are black; the thighs, except their tips, are green; the hind tibiæ are broad.

In October, near Fleetwood.

Aphides on the Parsnip (Pastinaca sativa).

APHIS ROBUSTA.

The winged viviparous female.—The body is deep black, larger and stouter than that of *A. caprea*, which also infests the parsnip: the antennæ are black and much shorter than the body: the rostrum is green, with a black tip: the tubes are black and about one-eighth of the length of the body: the legs are black and moderately long; the tibiæ, except the tips, are yellow: the wings are colourless and nearly twice the length of the body; the squamulae are pale yellow; the stigmata are dull buff; the veins are brown, and their tips are slightly clouded.

The wingless viviparous female.—When young it is very dark green or almost black: the antennæ and the legs are short and stout: the tubes are very stout: the body soon becomes quite black, and increases in breadth and thickness.

Aphides on the Willow (Salix caprea).

APHIS ALTERNA.

The winged viviparous female.—The body is small and black: the abdomen is rather dark green: the antennæ are almost filiform and much shorter than the body:

the rostrum is a little paler towards the base: the tubes are dark green, with black tips, and full one-fifth of the length of the body: the wings are colourless and very much longer than the body; the squamulæ are yellow; the stigmata and the veins are brown.

APHIS SECUNDA.

The winged viviparous female.—The body is black, shining, and of moderate size: the antennæ are very much longer than the body: the rostrum is yellow, with a black tip: the tubes are as long as one-fourth of the body: the legs are yellow and rather long; the four hinder thighs excepting the base, the tips of the fore thighs, the tarsi and the tips of the tibîæ, are black: the wings are colourless and very much longer than the body; the wing-ribs and the rib-veins are yellow; the brands are pale brown; the veins are brown.

Aphides on the Spotted Persicaria (Polygonum Persicaria).

APHIS TRANSIENS.

The wingless viviparous female.—The body is small, short, plump, dull, velvet-like, yellowish green: the antennæ are pale yellow, darker towards the tips, and much shorter than the body: the tubes are short: the legs are green and rather short; the tarsi are darker.

In the beginning of July.

Aphides on the Vegetable Marrow.

APHIS ILLATA.

The wingless viviparous female.—The body is small, oval, smooth, rather flat, not shining, whitish green: there are three vivid green stripes on the back: the antennæ are greenish white, shorter than the body; the tips of the latter joints are darker: the eyes are red: the rostrum is pale green, with a black tip: the tubes are pale green, with darker tips, and as long as one-eighth of the body: the legs also are pale green and moderately long; the feet are yellow, with darker tips.

Aphides on the Dock (Rumex).

APHIS RELATA.

The wingless viviparous female.—The body is short, elliptical, rather flat, light yellowish green: the antennæ are pale yellow, with brown tips, and not half the length of the body: the eyes are brown: the mouth and the nectaries are pale yellow, with brown tips, and the latter are hardly more than one-twelfth of the length of the body: the legs are pale yellow and moderately long; the feet and the tips of the shanks are brown.

Aphides on the Nettle (Urtica dioica).

APHIS TERTIA.

The wingless viviparous female.—The body is dark yellowish green, nearly linear, and of moderate size: the head is nearly black: the abdomen has a slight white bloom beneath: the antennæ are black and nearly as long as the body: the rostrum is pale yellow; its tip and the eyes are black: the tip of the abdomen is yellow: the tubes are black and about one-fifth of the length of the body: the legs are pale yellow and moderately long; the tarsi, and the tips of the thighs and of the shanks, are black.

The winged viviparous female.—The body is black: the sutures of the abdominal segments are dark green: the antennæ are a little longer than the body: the rostrum is yellow, with a black tip: the legs are black; the thighs at the base, and the shanks except their tips, are yellow: the wings are colourless and much longer than the body; the wing-ribs and the rib-veins are yellow; the brands are pale brown; the other veins are brown.

At the end of October, near Lancaster.

Aphides on the Juniper (Juniperus communis).

APHIS INDECISA.

The wingless viviparous female.—The body is small, green, oval, convex, smooth and shining: the head is yellowish: the antennæ are black, yellow at the base, and a little shorter than the body: the rostrum is yellow; its tip and the eyes are black: the tubes are dull yellow, with black tips, and as long as one-fourth of the body: the legs are also dull yellow and moderately long; the knees, the tarsi and the tips of the tibiæ are black.

APHIS INCERTA.

The winged viviparous female.—The body is pale greenish yellow, and of moderate size; the disk of the head and that of the thorax are buff: the antennæ are black and much longer than the body; the base of the third joint is pale yellow: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and nearly one-fourth of the length of the body: the legs are long and pale yellow; the tarsi are darker: the wings are colourless; the squamulæ are pale yellow; the costal veins and the stigmata are yellow; the veins are pale brown.

Aphides on the Fleabane (Inula dysenterica).

APHIS INULÆ.

The wingless viviparous female.—The body is pale yellow, shining, very small, elliptical, slightly convex: the antennæ have brown tips and are a little longer than the body: the eyes are dark red: the rostrum and the tubes have brown tips, and the latter are about one-fifth of the length of the body.

In the autumn, near Lancaster.

Aphides on the Field Scabious (Scabiosa arvensis).

APHIS CONSPERSA.

The wingless viviparous female.—The body is small, oval, slightly convex, smooth, shining, pale yellow, sprinkled with pale red spots: the antennæ and the rostrum are pale yellow, with black tips, and the former are less than half the length of the body: the eyes are black: the tubes are yellow, with black tips, and are less than one-twelfth of the length of the body: the legs are pale yellow and rather short; the knees and the tarsi are darker.

APHIS CONFUSA.

The wingless viviparous female.—The body is small, oval, rather flat, smooth, green, not shining; the sides of the abdomen are paler: the antennæ are white, black towards their tips, and much more than half the length of the body: the rostrum is very pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and about one-eighth of the length of the body: the legs are pale yellow and moderately long; the tarsi are black.

Found with the preceding species, in the autumn, near Newcastle, by Mr. Hardy.

Aphides on the Asparagus (Asparagus officinalis).

APHIS INDISTINCTA.

The wingless viviparous female.—The body is small, nearly oval, black, rather flat: the antennæ are dull green, paler at the base, and shorter than the body: the rostrum is also dull green; its tip and the eyes are black: the tubes are black and about one-twelfth of the length of the body: the legs are dull green.

Aphides on the Hound's Tongue (Cynoglossum officinale).

APHIS DIANTHI?

The wingless viviparous female.—The body is oval, small, red, rather flat: the antennæ are white, black towards their tips, and a little longer than the body: the rostrum is white; its tip and the eyes are black: the tubes are white, with black tips, and at least one-fourth of the length of the body: the legs are white; the tarsi and the tips of the tibiæ are black.

The winged viviparous female.—While a pupa it is elliptical, flat, velvet-like, green, shaded with black and red: the feelers are rather shorter than the body: the tubes are hardly one-fifth of the length of the body: the rudimentary wings are pale yellowish green, darker towards their tips: in other characters it resembles the wingless female.

APHIS ADJECTA.

The wingless viviparous female.—The body is oval, small, smooth, shining, pale yellowish green: the antennæ are pale yellow, black towards the tips, and about half

the length of the body: the rostrum is also pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and about one-twelfth of the length of the body: the legs are pale yellow; the tarsi are black; the tips of the tibiæ are brown.

Aphides on the Oak.

APHIS MALVÆ?

The wingless viviparous female.—The body is nearly oval, rather long, convex, shining, grass-green: the antennæ are dull yellow and nearly as long as the body; the tips of the joints and the whole of the latter joints are brown: the eyes are dark brown: the rostrum is pale green, with a brown tip: the tubes are pale yellow, with brown tips, and about one fourth of the length of the body: the legs are pale yellow, long and slender; the knees, the feet and the tips of the shanks are brown.

In the middle of May.

Aphides on the Coltsfoot (Tussilago farfara).

APHIS VACILLANS.

The wingless viviparous female.—The body is large, long, narrow, grass-green; the disk of the abdomen is pale yellowish green: the antennæ are pale yellow, with brown tips, and as long as the body: the eyes are dark brown: the mouth is green, with a brown tip: the tubes are black and about one-twentieth of the length of the body: the legs are long and pale yellow; the tarsi and the tips of the tibiæ are brown.

The winged viviparous female.—While a pupa all the joints of the antennæ have black tips: when the wings are unfolded the insect is green: the disk of the thorax is buff, streaked with brown above, black beneath: the antennæ are black and as long as the body: the abdomen has short black bands on its disk, and a row of black spots on each side: the legs are black; the thighs are dull yellow: the wings are colourless, and very much longer than the body.

Aphides on the Prickly Saltwort (Salsola Kali).

APHIS RUFULA.

The wingless viviparous female.—The body is small and red: the antennæ are red, black towards their tips, and a little shorter than the body: the mouth is pale red, with a black tip: the tubes are rather short: the legs are red: the knees, the tarsi and the tips of the tibiæ are black.

Aphides on the Elder (Sambucus nigra).

APHIS PICTA.

The wingless viviparous female.—The body is elliptical, convex, dull yellow, varied with purple: the antennæ are dull yellow, and hardly half the length of the body: the

rostrum is dull yellow; its tip and the eyes are black: the tubes are dark yellow and hardly one-tenth of the length of the body: the legs are pale yellow and rather short: the knees, the tarsi and the tips of the tibiæ are darker.

APHIS IMPACTA.

The winged viviparous female.—The body is black: the abdomen is yellowish brown; its disk is mostly black, and it has a row of black spots on each side: the antennæ are black and longer than the body; the base of the third joint is yellow: the rostrum is dull yellow, with a black tip: the tubes are also dull yellow and rather more than one-sixth of the length of the body: the legs are yellow and rather long; the thighs from the middle to the tips, the tarsi and the tips of the tibiæ are black: the wings are colourless; the squamulæ and the costal veins are pale yellow; the stigmata and the other veins are pale brown.

Found, with the preceding species, in the middle of September, near Newcastle, by Mr. Hardy.

APHIS EXUL.

The wingless viviparous female.—When very young the body is pale velvet-like green; their limbs are still paler: during its growth it acquires a yellow, and afterwards a red tint, varied with pale dull yellow.

The winged viviparous female.—The body is deep velvet-like black and rather small: the borders and the under-side of the prothorax and the abdomen are dark green: the antennæ are black and shorter than the body: the rostrum is dull green, with a black tip: the tubes are black and as long as one-sixth of the body: the legs are dull yellow; the four hinder thighs excepting the base, the knees, the tarsi and the tips of the shanks are black: the wings have a slight gray tinge; the squamulæ are dull green; the stigmata and the veins are brown.

Abundant in the middle of September, near Lancaster: one winged female stationed by a cluster of the young ones above mentioned.

APHIS ADVENA.

The body is small and black: the borders and the under-side of the prothorax are dull yellow: the abdomen is dull orange: the antennæ are black, thick till near their tips, and shorter than the body: the rostrum is dull yellow, with a black tip: the tubes are black and as long as one-sixth of the body: the legs are yellow; the tarsi, the tips of the thighs and of the tibiæ, and nearly the whole of the hind thighs, are black: the wings are colourless; the squamulæ are pale yellow; the stigmata and the veins are brown.

End of November.

Aphides on the Red Hemp-Nettle (Galeopsis Ladanum).

APHIS QUÆRENS.

The winged viviparous female.—While a pupa the body is elliptical and bright yellow: there is a row of green spots along the middle of the abdomen, and two or

or three on the thorax: in the winged state the head and the thorax are black: the antennæ and the tubes are of moderate length: the legs are yellow; the tarsi, the tips of the thighs and of the tibiæ are darker: the wings are colourless; the stigmata and the veins are brown.

Aphides on the Bedstraw (Galium cruciatum).

APHIS RUMICIS, var. ?

The wingless viviparous female.—The body is very small, black, short, broad, oval, convex, smooth, shining, reddish brown beneath: the antennæ are black, and nearly as long as the body: the rostrum is dull yellow, with a black tip: the tubes are black, and as long as one-fourth of the body: the legs are dull yellow, and moderately long; the tarsi are black.

Var. 1. The antennæ are dull yellow at the base.

Var. 2. The body is dull yellow.

The winged viviparous female.—Like the wingless insect, but the tips of the thighs are black: the wings are colourless, and much longer than the body; the squamulæ are pale yellow; the stigmata and the veins are brown.

Found in the autumn, near Newcastle, by Mr. Hardy.

Aphides on the Carrot (Daucus Carota).

APHIS ASSUETA.

The wingless viviparous female.—The body is small, yellowish green, elliptical, flat, not shining: the antennæ are pale green, and less than half the length of the body: the eyes are dark brown: the rostrum is pale green, with a black tip: the tubes are green, and not more than one-twelfth of the length of the body: the legs are pale green and rather short; the tarsi are darker.

Aphides on the Yellow Bartsia (Bartsia viscosa).

APHIS BARTSIE.

The winged viviparous female.—While a pupa it is elliptical, rather flat, dull greenish yellow, tinged with pale red: the antennæ are black, pale towards the base, and much shorter than the body: the rostrum is dull yellow; its tip and the eyes are black: the tubes are about one-tenth of the length of the body: the legs are dull yellow; the tarsi, the knees and the tips of the tibiæ are black.

Aphides on the Larch (Larix communis).

APHIS TENUIOR.

The winged viviparous female.—This species approaches *Aphis Pinicola*, *Laricis*, &c. The body is yellow, narrow and linear: the head and the lobes of the thorax are brown: the prothorax is pale red, and has a short pale brown band: the breast is

black: the antennæ are black, rather thick towards the base, and much shorter than the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are yellow, and as long as one-eighth of the body: the legs are yellow; the tarsi and the tips of the tibiæ are black: the wings are colourless: the squamulæ are pale yellow; the brands and the veins are brown.

Aphides on the Common Cud-weed (Gnaphalium germanicum).

APHIS GNAPHALII.

The wingless viviparous female.—The body is oval, slightly convex, rather long and narrow, shining, pale red: there is a row of black dots on each side of the abdomen, which is greenish towards the tip: the antennæ are black, and a little longer than the body: the rostrum is yellow; its tip and the eyes are black: the tube at the tip of the abdomen is very pale red: the tubes are black, and about one-sixth of the length of the body: the legs are long and pale yellow; the thighs from the middle to the tips, the tarsi and the tips of the tibiæ are black.

Aphides on the Narrow-leaved Orache (Atriplex angustifolia).

APHIS ATOMARIA.

The wingless oviparous (?) female.—The body is pale green, oval, convex, of moderate size, and thickly covered with white powder: the antennæ are yellow, black towards their tips, and very nearly as long as the body: the eyes are bright red: the rostrum is dull yellow, with a black tip: the tubes at the tip of the abdomen and the other tubes are dull yellow, and the latter have black tips, and are about one-sixth of the length of the body: the legs are yellow; the hind tibiæ from the base to the middle, the tarsi and the tips of the other tibiæ are black.

Found in the beginning of October.

Aphides on the Sea Bearbind (Convolvulus Soldanella).

APHIS DERELICTA.

The wingless viviparous female.—The body is small, yellow, nearly linear, rather narrow and flat: there are two pale green stripes on the back: the limbs are pale yellow: the antennæ are black towards the tips, and as long as the body: the tip of the rostrum and the eyes are black: the tubes have black tips, and are nearly as long as one-fifth of the body: the legs are moderately long; the knees, the tarsi and the tips of the tibiæ are black.

Var. 1. The body is pale red.

The winged viviparous female.—While a pupa it is pale red, pale yellow beneath towards the head: the legs are very pale red; the tarsi are black. The winged insect is black: the abdomen is dark green: the antennæ are a little longer than the body: the rostrum is pale dull yellow, with a black tip: the tubes are dull green, and nearly one-fourth of the length of the body: the tibiæ, excepting their tips, are yellow: the wings are colourless and much longer than the body; the squamulæ are pale yellow; the stigmata and the veins are brown.

APHIS DIANTHI?

The wingless viviparous female.—The body is oval, convex, smooth, shining, green and tinged with yellow: the antennæ are yellow, darker towards their tips, and nearly as long as the body: the eyes are dark red or nearly black: the rostrum and the tubes are yellow with black tips, and the latter are nearly one-fourth of the length of the body: the legs are yellow and moderately long; the tarsi and the tips of the tibiæ are black.

Var. 1 (or a distinct species?). The body is dull pale green: the head is pale yellow: the antennæ are black, much longer than the body, pale yellow towards the base: the legs are long and pale yellow; the knees, the tarsi and the tips of the tibiæ are black.

The winged viviparous female.—While a pupa it is pale red, mingled with yellow: the rudimentary wings are pale yellow, darker towards their tips. The winged insect is black and of moderate size: the borders and the under-side of the prothorax and the abdomen are dull yellowish green, tinged with red: the abdomen is darker on the disk, and has a row of black dots on each side: the antennæ are black and a little longer than the body; the base of the third joint is pale yellow: the rostrum is pale yellow, with a black tip: the tubes are dull yellow, with darker tips, and rather more than one-sixth of the length of the body: the wings are colourless; the squamulæ and the costal veins are yellow; the stigmata are pale brown; the veins are brown.

Aphides on the Eyebright (*Euphrasia officinalis*).

APHIS EUPHRASIÆ.

The wingless viviparous female.—The body is very small, oval, rather broad towards the hind part of the abdomen: the tubes are as long as one fourth of the body.

Aphides on the Willow Herb (*Epilobium*).

APHIS TINCTA.

The wingless viviparous female.—The body is very narrow, and increases in breadth from the head to the tip of the abdomen; it is pale green, darker along the middle and on each side: the limbs are pale yellow; the antennæ have black tips, and are as long as the body: the eyes, the tip of the mouth and the tips of the tubes are black, and the latter are as long as one-fifth of the body: the legs are moderately long; the thighs are pale green; the tarsi and the tips of the tibiæ are black.

APHIS RUMICIS? var.

The wingless viviparous female.—The body is small, slightly oval, convex, dull black: the limbs are dull white: the antennæ and the mouth have black tips, and the former are shorter than the body: the legs are moderately long; the knees, the tarsi and the tips of the tibiæ are black.

With the preceding species, in the middle of July.

APHIS RUMICIS? var.

The wingless viviparous female.—The body is small, oval, and black: the borders of the fore-chest are very dark green: the limbs are black: the antennæ are much shorter than the body: the tubes are as long as one-eighth of the body: the legs are moderately long; the tibiæ are pale yellow, with black tips.

The winged viviparous female.—In colour it resembles the wingless Aphis, but the tibiæ are quite black: the wings are colourless, and much longer than the body; the squamulæ are yellow; the stigmata and the veins are brown.

APHIS PRÆTERITA.

The wingless viviparous female.—The body is small, oval, convex, light green: the antennæ are pale yellow, with brown tips, and as long as one half of the body: the eyes are dark brown: the rostrum is pale green, with a brown tip: the tubes are pale green, with brown tips, and as long as one-eighth of the body: the legs are dull green and moderately long; the tarsi and the tips of the tibiæ are brown.

The winged viviparous female.—While a pupa it resembles the wingless form in colour: the legs are dull yellow; the tarsi are brown: the rudimentary wings are pale green. The winged insect is black, broad and stout: the borders of the prothorax are green: the abdomen is dark green: the antennæ are black and shorter than the body: the mouth is green, with a black tip: the tubes are black: the legs are black; the fore thighs are yellow at the base: the wings are colourless and much longer than the body: the squamulæ are pale yellow; the stigmata are pale brown; the veins are brown.

In the beginning of June.

APHIS POLLINOSA.

The wingless viviparous female.—The body is rather small, oval, plump, deep velvet-like green, powdered with white: the limbs are white: the antennæ have black tips and are shorter than the body; the tip of the rostrum and the eyes are black: the tubes are nearly one-sixth of the length of the body: the legs are dull white and moderately long; the tarsi are black.

Var. 1. The knees and the tips of the shanks are black.

Var. 2. The body is mottled with pale green.

Var. 3. The body is pale green.

Var. 4. The legs are pale yellow; the tarsi and the tips of the tibiæ are brown.

The winged viviparous female.—While a pupa it resembles the wingless Aphis in colour, but is narrower, more flat, and less velvet-like: the rudimentary wings are white or black. The winged insect is deep black: the abdomen is greenish black: the eyes and the antennæ are black, and the latter are much shorter than the body: the rostrum is yellow, with a black tip: the tubes are black and as long as one-sixth of the body: the legs are black: the tibiæ and the fore thighs are yellow; their tips are black: the wings are slightly tinged with gray and are much longer than the body; the squamulæ are dull white; the stigmata and the veins are dark brown.

APHIS DESPECTA.

The wingless viviparous female.—The body is small, nearly elliptical, rather flat, grass-green, not shining, paler towards the head: the antennæ are pale yellow, with brown tips, and are much shorter than the body: the eyes are black: the rostrum is pale green, with a black tip, and reaches beyond the middle coxæ: the tubes are yellowish white, with brown tips, and are as long as one-sixth of the body: the legs are pale yellow and moderately long; the knees, the tarsi and the tips of the tibiæ are black.

The winged viviparous female.—While a pupa it much resembles the wingless Aphis in colour. The winged insect is deep velvet-like black: the borders of the prothorax and the abdomen are dark green; the antennæ are black, shorter than the body, rather stout till near their tips: the eyes are black: the rostrum is dull green, with a black tip: the tubes are black, and as long as one-sixth of the body: the legs are dull yellow; the four hinder thighs excepting the base, the knees, the tarsi and the tips of the tibiæ are black: the wings are colourless and longer than the body; the squamulæ are pale green; the stigmata and the veins are brown.

End of June.

APHIS EPILOBIINA, var. ?

The wingless viviparous female.—The body is elliptical, small, green, slightly convex: the limbs are pale yellow: the antennæ have brown tips, and are much shorter than the body: the eyes are black: the tip of the rostrum and the tips of the tubes are brown, and the latter are one-eighth of the length of the body: the legs are moderately long; the tarsi and the tips of the tibiæ are brown.

The winged viviparous female.—While a pupa its colour resembles that of the wingless form: its rudimentary wings are pale yellow: when the wings are unfolded the insect is small and deep black: the borders and the under side of the prothorax are dark green: the abdomen is dark green, with a row of black spots on each side: the antennæ and the eyes are black, and the former are much shorter than the body: the rostrum is pale yellow, with a black tip: the tubes are black, and as long as one-eighth of the body: the legs are yellow; the thighs excepting the base, the tarsi and the tips of the tibiæ are black: the wings are colourless and longer than the body: the squamulæ are pale green; the stigmata are dull green; the veins are brown.

Aphides on the Foxglove (Digitalis purpurea).

APHIS ULMARIÆ ?

The wingless viviparous female.—The body is spindle-shaped, narrow, slightly convex, yellow, not shining: the antennæ are yellow, black towards the tips, and nearly as long as the body: the eyes are very dark red: the rostrum is pale yellow, with a black tip: the tubes are yellow, with black tips, and as long as one-fourth of the body: the legs are yellow; the knees are brown; the tarsi and the tips of the tibiæ are black.

APHIS CONSUMPTA.

The wingless viviparous female.—The body is very small and short, broad and convex, oval, shining, pale dull yellow: the antennæ are pale yellow, black towards the tips, and hardly half the length of the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are yellow, with black tips, and not more than one-twentieth of the length of the body: the legs are pale yellow, and rather short: the knees, the tarsi and the tips of the tibiæ are black.

APHIS PILOSA.

The wingless viviparous female.—The body is very small, rather short and broad, oval, convex, shining, pale brown and hairy above, pale red beneath: the antennæ are black, pale red at the base, and longer than the body: the rostrum is pale red; its tip and the eyes are black: the tubes are pale red, with black tips, and nearly one-fourth of the length of the body: the legs are dull yellow; the tarsi and the tips of the tibiæ are black; the tips of the thighs are brown.

APHIS RUBI?

The wingless viviparous female.—The body is oval, convex, rather small, slightly shining, yellow: the antennæ are black, yellow towards the base, and as long as the body: the rostrum is pale yellow; its tip and the eyes are black: the tubes are dark yellow, with black tips, and nearly one-fourth of the length of the body: the legs are yellow; the knees are brown; the tarsi and the tips of the tibiæ are black.

APHIS URTICÆ?

The wingless viviparous female.—The body is rather narrow, oval, convex, shining, pale whitish green: the head and the prothorax are pale yellow: the antennæ are yellow and a little longer than the body; the tips of the joints are black: the rostrum is pale yellow; its tip and the eyes are black: the legs are also pale yellow; the knees, the feet and the tips of the tibiæ are black.

Found on the leaves of the foxglove, towards the end of November, near Carlisle, with the four preceding and three other species.

Aphides on the Thistle (Carduus).

APHIS LACTUCÆ?

The wingless viviparous female.—The body is elliptical, rather long and flat, pale yellowish green, with a vivid green stripe on the back: the antennæ are brown, pale green at the base, and more than half the length of the body: the eyes are dark brown: the rostrum, the tubes and the legs are very pale green; the rostrum has a brown tip, and reaches beyond the middle coxæ: the tubes are one-fourth of the length of the body: the legs are of moderate length: the tarsi are pale brown.

Middle of May.

APHIS DIANTHI?

The wingless viviparous female.—The body is small, pale green: the antennæ are pale yellow, black towards their tips, and nearly as long as the body: the rostrum is pale yellow; its tip, the eyes and the tubes are black, and the latter are as long as one-sixth of the body: the legs are also pale yellow and of moderate length; the four hinder thighs are dark dull yellow; the knees, the tarsi and the tips of the tibiæ are black.

Var. 1. The body is dark green.

Var. 2. The body is reddish towards the head.

Var. 3. The head is almost black.

The winged viviparous female.—While a pupa it resembles the wingless insect in colour: the rudimentary wings are pale green. The winged Aphis is black: the borders of the prothorax are green: the abdomen is dark green; its disk, the eyes and the antennæ are black, and the latter are as long as the body: the rostrum is pale green, with a black tip: the tubes are black, and as long as one-sixth of the body: the legs are pale yellow; the thighs excepting the base of the fore thighs, the tarsi and the tips of the tibiæ are black: the wings are colourless and much longer than the body; the squamulæ are pale yellow; the stigmata are pale brown; the veins are brown.

APHIS FLAVEOLA.

The wingless viviparous female.—The body is elliptical, convex, bright pale yellow: the limbs are pale yellow: the antennæ are black towards the tips and a little shorter than the body: the eyes and the tip of the rostrum are pale yellow: the tubes have black tips and are as long as one-fourth of the body: the tarsi and the tips of the tibiæ are black.

In the beginning of November.

APHIS CAPRÆ?

The wingless viviparous female.—The body is elliptical, long, narrow, rather flat, pale grass-green: the antennæ are pale green and less than half the length of the body: the eyes are dark brown: the rostrum, the tubes and the legs are pale green; their tips are brown; the tubes are as long as one-sixth of the body: the legs are of moderate length.

The winged viviparous female.—While a pupa it is yellow, mingled with green: the antennæ are yellow, with brown tips, and more than half the length of the body: the eyes are dark brown: the rostrum is pale green, with a brown tip: the tubes are dull green and as long as one-sixth of the body: the legs are greenish yellow; the tarsi and the tips of the tibiæ are brown. The winged insect is black: the borders of the fore-chest are dark green: the abdomen is very dark green, almost black above: the antennæ are black and nearly as long as the body: the rostrum is green, with a black tip: the tubes are black and as long as one-sixth of the body: the legs are pale yellow; the hind thighs excepting the base, the tarsi, and the tips of the other thighs and of the tibiæ are black: the wings are colourless and very much longer than the body; the squamulæ and the stigmata are pale yellow; the veins are pale brown.

In May.

Aphides on the Great Hedge Bearbind (Convolvulus Sepium).

APHIS DIANTHI?

The wingless viviparous female.—The body is small, pale green, tinged with yellow, especially towards the head: the limbs are pale yellow: the antennæ are black towards the tips and longer than the body: the tip of the rostrum, the eyes and the tips of the tubes are black; the latter are as long as one-fourth of the body: the legs are moderately long; the knees, the tarsi and the tips of the tibiæ are dark.

The winged viviparous female.—The body is black: the antennæ are black and a little longer than the body: the rostrum is dull yellow, with a black tip: the tubes are pale yellow, with black tips, and more than one-fifth of the length of the body: the legs are pale yellow; the hind thighs excepting the base, the tarsi, and the tips of the other thighs and of the tibiæ are black: the wings are colourless and much longer than the body; the squamulæ and the costal veins are pale yellow; the stigmata and the other veins are pale brown.

Found at the end of September and in the beginning of October, near Newcastle, by Mr. Hardy.

Aphides on the Ox-eyed Daisy (Chrysanthemum leucanthemum).

APHIS CHRYSANTHEMI.

The winged viviparous female.—While a pupa it is dull red: the antennæ are black, dull green at the base: the rostrum is dull green, with a black tip: the tubes, the legs and the rudimentary wings are also dull green. The winged Aphis is black and very small: the borders and the under-side of the prothorax are dark brown: the abdomen is very dark brown: the antennæ are black and nearly as long as the body: the rostrum is dull yellow, with a black tip: the tubes are black and about one-tenth of the length of the body: the legs are black; the fore thighs are pale yellow at the base; the tibiæ are dull yellow, with black tips: the wings are colourless; the squamulæ are yellow; the brands and the veins are brown.

Found in the middle of September.

Var. 1. The borders and the under-side of the prothorax and the abdomen are green: the rostrum is green, with a black tip: the legs are black; the fore thighs are pale yellow at the base: the squamulæ are pale yellow; the stigmata are pale brown; the veins are brown.

Var. 2. Like the first, but the abdomen is black at the base.

Var. 3. Like the first, but the back of the abdomen is dark green; its disk is black.

Var. 4. Like the first, but the tubes are dull green and as long as one-eighth of the body.

Var. 5. Like the first, but the middle thighs, the fore tibiæ and the middle tibiæ are yellow at the base.

Var. 6. Like the first, but the stigmata are brown.

The wingless viviparous female.—The body is oval and dull green: the antennæ are dull green and half the length of the body: the eyes are dark brown: the rostrum is pale green, with a brown tip: the tubes are dull green and as long as one-eighth

of the body: the legs are short and dull green; the tarsi and the tips of the tibiæ are brown.

Found with the preceding varieties of the winged *Aphis*, at the end of May.

Aphides on the Cheese-rennet (Galium verum).

APHIS DIANTHI, var. ?

The wingless viviparous female.—The body is very small, oval, convex, dark green, slightly shining: the antennæ are yellow, black towards the tips, and much shorter than the body: the rostrum is dull green; its tip and the eyes are black: the tubes are black and nearly as long as one-fourth of the body: the legs are dull yellow and rather short; the knees, the tarsi and the tips of the tibiæ are black. When young it is pale green, linear and flat.

Var. 1. The body is dark yellow.

Var. 2. The tubes are green at the base.

Found in the beginning of October, near Fleetwood.

Aphides on the Black Knapweed (Centaurea nigra).

APHIS LACTUCE ?

The wingless viviparous female.—The body is small, nearly linear, slightly convex, pale greenish yellow, smooth, shining: the antennæ are pale yellow, longer than the body; the tips of the joints are black: the rostrum is pale yellow; its tip and the eyes are black: the tubes are pale yellow, with black tips, and nearly one-fourth of the length of the body: the legs are long and very pale yellow; the knees and the tips of the tibiæ are brown; the tarsi are black. When young it is almost white.

Found in the middle of October.

Aphides on the Mignonette (Reseda odorata).

APHIS INTRODUCTA.

The wingless oviparous female.—The body is very small, oval, slightly convex, shining, dark green, with a rim on each side of the body: the head is yellow: the antennæ are pale yellow and about half the length of the body; the tips of the joints are black: the rostrum is pale yellow; its tip and the eyes are black: the legs are pale yellow; the knees, the tarsi, the tips of the tibiæ and the whole of the hind tibiæ are black; the latter are rather wide.

FRANCIS WALKER.

ART. X.—*Descriptions of New Species of British Bees.* By FREDERICK SMITH, Esq.,
Curator to the Entomological Society.

CERATINA ALBILABRIS, Spin.

Ceratina albilabris, Spin. Ins. Lig. t. 1, p. 151, female. *Ceratina nitidula*, Spin. Ins.

Lig. No. 2, male. *Prosopis albilabris*, Fab. Syst. Piez. p. 293, 2, female.

Male.—(Length $2\frac{3}{4}$ lines). Black, punctate: head, the clypeus and a spot on the

labrum white; the antennæ piceous beneath. Thorax, the tubercles white; a minute white spot at the base of all the tibiæ; the apical joint of all the tarsi ferruginous; the wings subhyaline; the tegulæ piceous. Abdomen clavate, of a dark brownish black; the margins of the segments piceous.

This insect is in the cabinet of British insects at the British Museum. It has a ticket attached, No. 236: on referring to a manuscript catalogue of Dr. Leach's an entry was found,—“June 4th,” (1829?) “236, taken in Tothill Lane,” Devonshire; and as I have had the pleasure of confirming some of the doubtful Hymenoptera in the national collection to be indigenous, I include this insect in my descriptions.

MEGACHILE ODONTURA.

Male.—(Length $4\frac{1}{4}$ lines). Black, punctured: head, the face densely clothed with a rich fulvous pubescence; the mandibles fringed beneath with long pale hairs. Thorax, above thinly, and more densely on the sides, clothed with fulvous pubescence; the wings hyaline, slightly clouded at their apical margins; the nervures ferruginous; the femora beneath fringed with long pale fulvous pubescence; the anterior tarsi simple, ferruginous; the apex of the basal joint, the second and third palest; tips of the claws black; the apical joint of the intermediate and posterior tarsi ferruginous; the tips of the claws black. Abdomen elongate, obtuse at the apex; the two basal segments thinly clothed above with fulvous pubescence; the margin of the segments, first to the fifth have a narrow band of short pale fulvous pubescence, attenuated in the middle; the margin of the sixth segment has a row of short teeth, and the seventh is incurved and produced into a sharp conical spine.

This bee is also in the British Museum. No. 262 of Leach's manuscript catalogue: the entry is “June, found settling on a footpath near our house.” Spitchwick?

OSMIA PURPURASCENS.

Male.—(Length $4\frac{3}{4}$ lines). Entirely of a violet-blue, finely punctate: head, the face, cheeks and mandibles fringed with long griseous pubescence; the mandibles and antennæ black; the joints of the latter slightly arcuate, as long as the head and thorax. Thorax, thinly above, more densely on the sides and beneath, also the anterior femora beneath, clothed with a long griseous pubescence; the legs black; the claws ferruginous; wings hyaline, very slightly clouded at their apical margins. Abdomen, the two basal segments clothed with long, erect, griseous pubescence; that on the remaining segments is short and black; the apical segment entire.

Also in the British Museum. Captured by Mr. Bydder,—probably in the New Forest.

HALICTUS GRAMINEUS.

Female.—(Length $3\frac{1}{4}$ lines). Light green, finely punctate: head, the apical joints of the antennæ testaceous beneath; a short, thin, griseous pubescence on the face; that on the vertex fulvous, as it is also on the disk of the thorax: the metathorax is of an olive-green; the wings splendidly iridescent, their nervures and tegulæ testaceous; the anterior tibiæ, the intermediate and posterior at their base, and all the tarsi, testaceous: claws ferruginous. Abdomen clothed with a thin, short, rufo-

griseous pubescence; the margins of the segments have each a band of griseous pubescence; the anal rima is fulvous.

Male.—(Length $3\frac{1}{4}$ lines). Closely resembling the female; nose pale yellow; the antennæ rufo-piceous beneath, otherwise as in the female, excepting that all the tibiæ and tarsi are pale yellow; the anterior tibiæ stained in front with ferruginous; the intermediate pair have a black stain in front, and the posterior in front and behind also have a black stain; the claws ferruginous.

I have a pair of this species in my own collection, taken in Hampshire; and there are several in the cabinet of the British Museum, taken in Devonshire. It is closely allied to *Hal. virescens* of St. Fargeau, but he makes no mention of the pale legs.

ANDRENA EXTRICATUS.

Female.—(Length 5 lines). Black: the face clothed with a short pale fulvous pubescence; that on the vertex is black. Thorax thinly clothed above, densely on the sides, and metathorax laterally, with pale fulvous pubescence; that on the legs is of the same colour, except that on the anterior tibiæ, which is fuscous; the apical joints of the tarsi are rufo-piceous; the claws ferruginous; the basal joint of the posterior tarsi ferruginous within; the wings hyaline, very slightly clouded on their apical margins: the nervures ferruginous. Abdomen closely punctured, a little pale pubescence at the base; the first and three following segments have a white marginal fascia, the first usually interrupted; the anal fimbria sooty black.

Male.—(Length 4 lines). Black; its pubescence griseous, tinged with fulvous on the face, tibiæ and tarsi within; wings hyaline; the nervures pale ferruginous. Abdomen ovate-lanceolate; the second and three following segments have a narrow white marginal fascia; the apex fulvous.

This species is allied to *A. fulvicrus*, and I had considered it to be merely a variety of that species, the female being the only sex I was acquainted with, the colour of the abdominal fascia being the only prominent difference; but having now met with both sexes, I am quite satisfied of their specific difference: it obtains in the greatest degree in the male. I should observe that my specimens of both sexes are fine, fresh and recently developed.

ANDRENA FRONTALIS.

Male.—(Length 4 lines). Black: head wider than the thorax; the face has a thin hoary pubescence; the clypeus white, having on each side an angulated black spot; the mandibles arcuate. Thorax shining, with scattered punctures, having a long, thinly scattered, griseous pubescence; the legs black, with the claws ferruginous; the wings hyaline, their apical margins slightly clouded; the nervures and tegulæ black. Abdomen ovate-lanceolate, punctate; the margins of the segments slightly constricted; a little pale ochraceous pubescence at the apex; beneath, the third and two following segments are fringed with bright fulvous pubescence.

This conspicuous species is from Devonshire. It was captured by my friend Mr. S. Stevens, who kindly presented it to me.

ANDRENA CONSTRICTUS.

Male.—(Length 4 lines). Black: antennæ nigro-piceous, nearly as long as the

head and thorax; the face has a little pale yellow pubescence. Thorax shining, punctate; a little pale yellow pubescence on the sides and metathorax; all the tarsi and the posterior tibiæ pale ferruginous, the latter black at their base; wings subhyaline; nervures and tegulæ piceous. Abdomen oblong-ovate, punctate; the basal segment constricted; the other segments have their margins narrowly piceous; the apex has a little bright yellow pubescence.

This species was sent to me by the Rev. Mr. Little, from Scotland. It is quite distinct from any of our previously described species: it is most closely allied to the male of *A. albicans*.

ANDRENA SIMILIS.

Male.—(Length 4 lines). Black: the face and cheeks clothed with long white pubescence; that on the vertex is pale fulvous, as is also that which clothes the disk of the thorax; beneath and on the coxæ and femora it is long and white; the posterior tibiæ and basal joint of the tarsi rufo-piceous; the tibiæ beneath have a black stain, reaching nearly to the apex; all the claws ferruginous; the tegulæ piceous; wings hyaline; nervures piceous. Abdomen ovate, shining, finely punctured; the margins of the segments narrowly piceous; the apex fulvous; at the base a thin clothing of cinereous pubescence; beneath, the margins are broadly piceous.

This male is nearly allied to that of *A. cingulata*, but abundantly distinct. My specimens are from Bristol. I have seen others in the collections of Messrs. Desvignes and Pickering.

Notes.—I described a species of *Andrena* (Zool. 1743) under the name of *proxima*: that name having been previously used by Kirby, I changed it to *consimilis*, forgetting that I had used that name (Zool. 1736) for a species allied to *nitida*. I now desire that the name *æstiva* be used for the first-named species, which is allied to *Gwynana*.

I also described a new indigenous species of wasp from the North, and called it *Vespa borealis*; I have subsequently discovered that Mr. Kirby described a species from North America, in the 'Fauna Boreali-Americana,' naming it *V. borealis*: I therefore propose, in lieu of the name given (Zool. 170), to substitute *V. arborea*, from its habit of constructing its nest in trees.

In my descriptions of humble bees, I named the 13th species *Bombus montanus*, a name previously used by St. Fargeau, in lieu of which I propose *B. monticola*.

Corrections and additions to the synonymy of Halictus abdominalis (Zool. 2106).—*Male*: *Hylæus abdominalis*, Panz. Faun. Germ. 53, 18. *Apis abdominalis*, Kirby, Mon. Ap. Ang. ii. 73, 30. *Halictus terebrator*, Walckenaer, Mem. Halict. 72. *Female*: *Andrena vulpina*, Fab. Syst. Piez. 326, 18; Panz. Faun. Germ. f. 18. *Apis bicincta*, Schrank. Enumer. Ins. Aust. 411, 826? *Melitta fulvocincta*, Kirby, Mon. Ap. Ang. ii. 68, 28. *Halictus terebrator*, Walckenaer.

FREDERICK SMITH.

ART. XI—*Descriptions of New British Micro-Lepidoptera.*

By H. T. STAINTON, Esq.*

CRAMBUS WARRINGTONELLUS.

Lithargyrellus, St.?

Exp. $9\frac{1}{2}$ — $10\frac{1}{2}$ lines. Distinguished from the rayed varieties of the preceding [perlellus]—which it much resembles—by its smaller size, shorter palpi and darker antennæ.

I am indebted to Mr. Cooke, of Warrington, for this species: he informs me “that it frequents the wet portions of the moss the first week in July,” and that he never takes perlellus there at all.

TALÆPORIA INCONSPICUELLA.

♂ Exp. 5 lines (the Continental *Lichenella* exp. 8 lines). Anterior wings pale gray, with darker reticulations and nervures; head black; ♀ black. Case 3 lines long, conical (the case of *Lichenella* is above $3\frac{3}{4}$ lines long).

This is the cembrella of many of our cabinets.

TINEA ARGENTIMACULELLA.

Exp. $3\frac{3}{4}$ lines. Anterior wings purple-brown; on the costa are three silvery streaks at nearly equal distances; opposite the first two are two silver spots on the inner margin, and another silver spot near the anal angle; in the apex of the wing are three small silver spots.

Three specimens; one in the Bentleyan collection (as sequella), one in Mr. Stephens' collection, and one in Mr. Sircom's collection.

TINEA RURICOLELLA.

Granella, Dup. 289, 12?

Nearly allied to cloacella. Anterior wings less mottled, and the second costal blotch has not its apex extended towards the hinder margin.

Occurs in May and June, at Lewisham, in hedges, with the preceding [cloacella].

MICROPTERYX SUBAMMANELLA.

Ammannella, Tr.?

Exp. 3 lines. Resembles *Tinea bistrigella*, but anterior wings purple, with two straight yellowish fasciæ, and a round yellowish spot on the disk beyond the second fascia.

I have a single specimen which I took in Scotland last July, among mixed underwood.

NEMOTOIS MINIMELLUS, *Mann in litt.*

Exp. $5\frac{1}{2}$ lines, thus smaller than the preceding [Schiffermullerellus]; anterior wings narrower, and without the rich tints of Schiffermullerellus, which render it one of our most beautiful species.

I took a single specimen near Airthrey, North Britain, in a moist meadow, last July.

* Also published in Mr. Stainton's 'Systematic Catalogue.'

YPSOLOPHUS DURDHAMELLUS.

Exp. 7 lines. Anterior wings ochreous, with the apex darker; a conspicuous black spot on the disk near the middle of the inner margin, another between this and the apex, and occasionally one or two smaller spots above these.

Taken by Mr. Sircom on Durdham Downs, near Bristol, and by Mr. Jordan in Devonshire.

ÆCOPHORA FUSCIFRONTILLA.

Exp. $4\frac{1}{2}$ lines. Head and *face* brown; anterior wings dingy brown, with two pale sulphur spots on the inner margin, one near the base, the other at the anal angle, and one on the costa towards the apex.

I took a single specimen in Scotland, in June, 1847, among mixed underwood.

ÆCOPHORA SUBAQUILEA, *Edleston in litt.*

Exp. $5\frac{1}{2}$ lines. Anterior wings ochreous, dusted with fuscous, with a dark fuscous spot placed obliquely on the disk near the middle of the inner margin, and three smaller dark spots—nearly in a line—above the anal angle.

ÆCOPHORA PSEUDO-SPRETILLA.

A curious insect, resembling in markings *Tinea spretella*, but generally much larger (sometimes exp. 11 lines), and with a smooth head, recurved palpi, &c.

ÆCOPHORA INCONGRUELLA.

Exp. $5\frac{1}{2}$ lines. Anterior wings dull fuscous, without markings; posterior wings gray, with paler cilia.

Hardly of this genus: second joint of the palpi *thick*; terminal joint *very short*.

Mr. Allis has three specimens, which were taken early in the spring, on the moors near Halifax.

RÆSLERSTAMMIA PERLEPIDELLA.

Exp. 5 lines. Anterior wings rich coppery brown, with a yellow fascia before the middle, nearly straight, and an oblique bluish one a little beyond the middle (the two extremities of this fascia are yellow); beyond this is another nearly straight bluish fascia, which towards the costa is furcate and yellowish. Much resembles *Tinea marginepunctella*, but readily distinguished by the front of the head being smooth and palpi thin.

Two specimens; one in the Bentleyan collection (as *formosella*), one in Mr. Douglas's collection.

ÆCHMIA SUBDENTELLA.

Exp. $4\frac{1}{2}$ —5 lines. Anterior wings dark brown, sprinkled with yellowish dust, with two pale yellowish spots on the inner margin, one on each side of a tuft of projecting scales.

In many cabinets as *Amaurosetia atrella*. Occurs on the downs near Croydon, in May.

ZELLERIA, n. g.

Head rough; palpi rather short, rough; anterior wings narrow, somewhat falcate; posterior wings broader than in *Coleophora* or *Gracilaria*.

ZELLERIA HEPARIELLA, *Mann in litt.*

Exp. 5 lines. Anterior wings livid red, with the apex inclining to violet; head ferruginous.

In many cabinets as *Gracilaria rufipennella*.

ZELLERIA INSIGNIPENNELLA.

Exp. 7 lines. Differs from *hepariella* only in size and the want of the violet apex. In Mr. Bedell's and Mr. Weir's collections.

ZELLERIA FASCIAPENNELLA, *Logan in litt.*

Exp. 8½ lines. Anterior wings white, dusted with gray, with a dark gray fascia a little before the middle, and the apex also dark: on the disk there are four rows of minute black spots, as in *Hyponomeuta*.

Two specimens taken by Mr. Logan, among heather, in September.

BEDELLIA, n. g.

With the rough head of *Ornix*, and the extremely narrow posterior wings of *Cosmopteryx*.

BEDELLIA ORPHEELLA.

Exp. 5 lines. Anterior wings gray, with an ochreous tinge, especially on the inner margin; posterior wings gray, with long gray cilia.

One specimen taken by Mr. Bedell, near Leatherhead, in September.

ELACHISTA STEPHENSI.

Like a small *Staintoni* [Zool. 2037], but the head and ground colour of the anterior wings *white*.

Taken by Bouchard, last summer, at Hainault Forest, from whitethorn.

ELACHISTA PATRICIELLA.

Exp. 4 lines. Anterior wings golden brown, with eight silvery spots, of which four are on the inner margin, three on the disk, and one on the costa near the apex; antennæ black, with the tip white.

One specimen taken by Mr. Weir, among alders.

ELACHISTA NIVEIPUNCTELLA.

Exp. 4½ lines. Anterior wings bronze-coloured, with a white spot on the disk beyond the middle, which does not reach either margin; between this and the base is a smaller white spot, sometimes very indistinct: antennæ unannulated (in *langiella*, *Tr.*, they are annulated).

Three specimens: one in Mr. Stephens's, one in Mr. Allis's and one in Mr. Shepherd's collection.

ELACHISTA TRAPEZIELLA.

Anterior wings black, with four small white spots,—one on the disk near the base, one on the costa beyond the middle, one near the anal angle, and one towards the apex,—thus very unlike any other known species; head black.

ELACHISTA APICIPUNCTELLA.

Nobilella, Sta. in litt. (non Z.)

Larger than albifrontella. Exp. $4\frac{1}{2}$ lines. Anterior wings dark golden brown, with an oblique silvery fascia before the middle (nearest the base on the costa), and two silvery spots posteriorly, the costal one rather behind the dorsal one, and near its apex a silvery spot near the hinder margin.

Nobilella, Z., for which I at first took this, is rather *smaller* than *magnificella*.

BUCCULATRIX AURIMACULELLA.

Anterior wings very glossy and rather bronze-coloured, with two pairs of obliquely placed yellowish spots; head very dark purple.

Taken by Mr. Sircom, and sent by him to many persons as *Euspilapteryx auroguttella*.

BUCCULATRIX VETUSTELLA, *Mann in litt.*

Very closely allied to the preceding [*ulmella*], but *yellow*er, the dorsal dark spot smaller and brighter, and the apex of the wing paler.

I find I have one specimen, which I took among oaks, August 12th last year.

NEPTICULA ANGULIFASCIELLA.

Argyropeza, Z., var. *a*, 320?

Smaller than *argentipedella*. Anterior wings black, with two nearly opposite trigonal silvery spots a little beyond the middle of the wing, sometimes united and forming an angulated fascia; head ferruginous.

NEPTICULA SEPTEMBRELLA.

Anterior wings blackish, with a single yellowish spot *on the disk* near the anal angle: head ferruginous; *antennæ* grayish.

One specimen taken by Mr. Bedell, at West Wickham, last September.

TRIFURCULA SQUAMATELLA.

Exp. 4 lines. Anterior wings yellowish, with coarse dark scales; head yellowish; posterior wings *with yellowish cilia*.

Mr. Sircom and Mr. Bedell have each one specimen.

TRIFURCULA PULVEROSELLA.

Not properly belonging to this genus; but very like the preceding [*immundella*], only darker and head *ferruginous*.

Scarce. I have taken it among grass, in May.

H. T. STAINTON.



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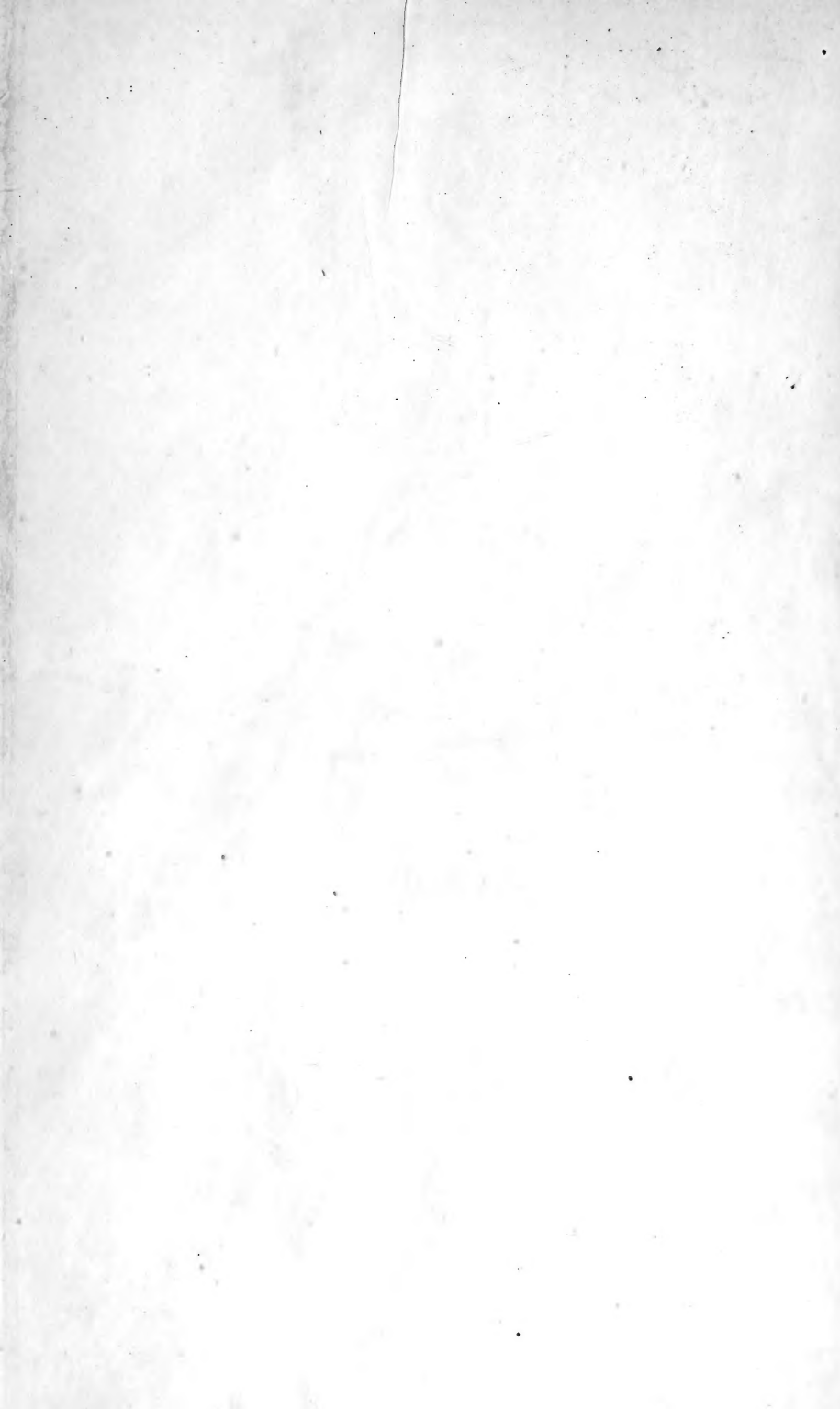


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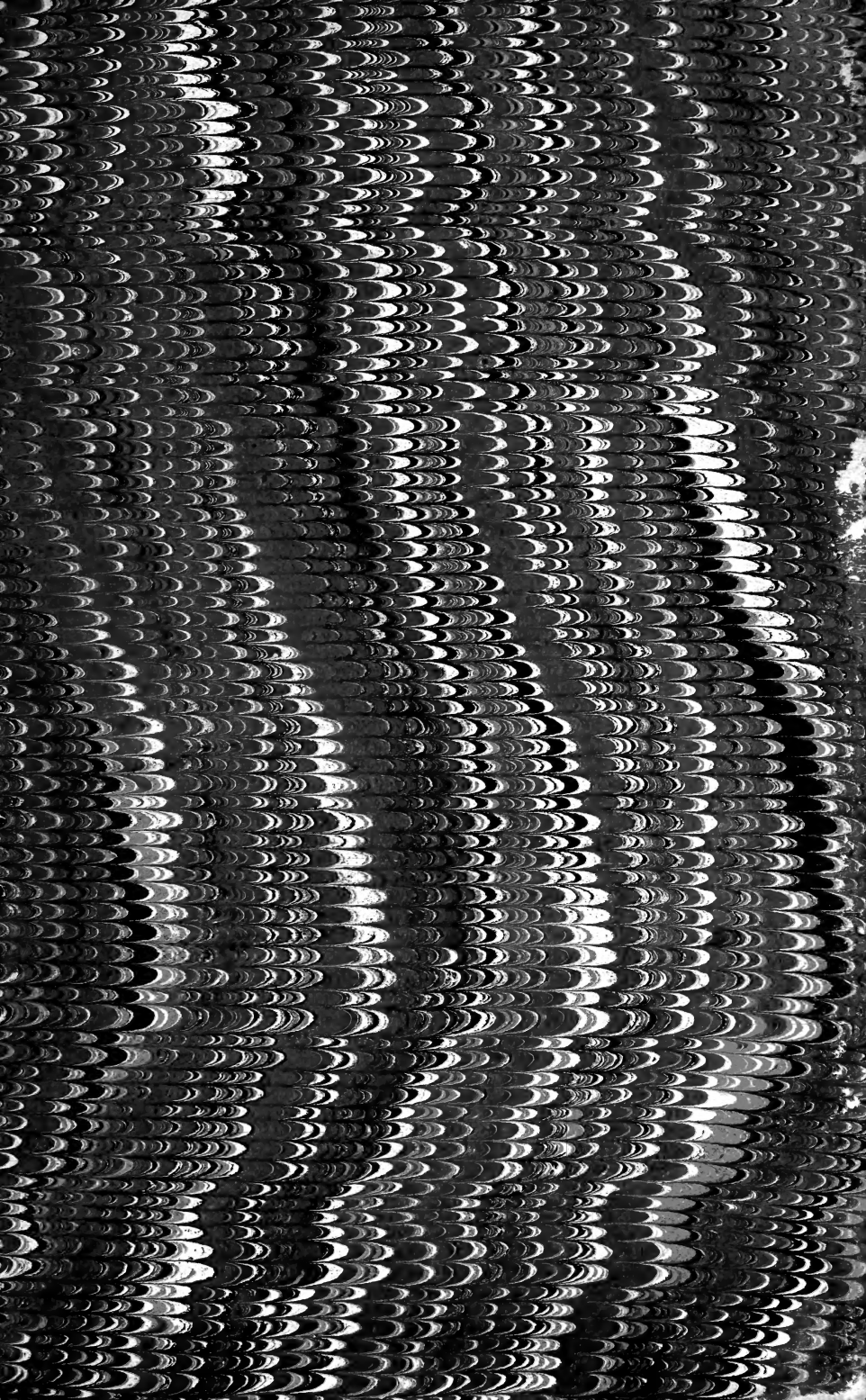


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